

PubMed	Nucleotide	Protein	Genome	Structure	PMC	Taxonomy	OMIM	Books
Search PubMed	▼ for polyphenol oxidase and Doyle						Go	Clear
Limits Preview/Index History Clipboard Details								

Display	Summary	▼	Show: 20	▼	Sort	▼	Send to	Text	▼
Items 1-3 of 3									One page

Entrez PubMed

☐ 1: [Kolganova TV, Dzharadat T, Ermolaev AV, Osipova IG, Vasil'eva EA, Dalin MV, Doyle RJ.](#) Related Articles, Links

Combined Effect of Low-Frequency Laser and Polyphenol Oxidase on Adhesive Activity of Escherichia coli Strains Isolated from Patients with Urinary Diseases.  
Bull Exp Biol Med. 2002 Jul;134(1):54-6.  
PMID: 12459869 [PubMed - in process]

PubMed  
Services

☐ 2: [Kolganova TV, Ermolaev AV, Doyle RJ.](#) Related Articles, Links

Effects of asparaginase and polyphenol oxidase on adhesive characteristics of microorganisms.  
Bull Exp Biol Med. 2002 Jan;133(1):58-61.  
PMID: 12170308 [PubMed - indexed for MEDLINE]

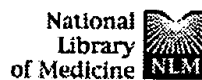
☐ 3: [Cowan MM, Horst EA, Luengpailin S, Doyle RJ.](#) Related Articles, Links

Inhibitory effects of plant polyphenoloxidase on colonization factors of Streptococcus sobrinus 6715.  
Antimicrob Agents Chemother. 2000 Sep;44(9):2578-80.  
PMID: 10952624 [PubMed - indexed for MEDLINE]

Related  
Resources

[Write to the Help Desk](#)  
[NCBI](#) | [NLM](#) | [NIH](#)  
[Department of Health & Human Services](#)  
[Freedom of Information Act](#) | [Disclaimer](#)

Jun 5 2003 10:08:34



PubMed	Nucleotide	Protein	Genome	Structure	PMC	Taxonomy	OMIM	Books
Search PubMed	▼ for Cowan MM[au]						Go	Clear
Limits		Preview/Index		History	Clipboard	Details		

Display	Summary	▼	Show: 50	▼	Sort	▼	Send to	Text	▼
Items 1-5 of 5								One page	

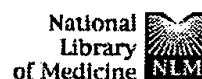
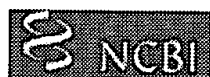
Entrez PubMed

☐ 1: [Cowan MM.](#)[Related Articles, Links](#)**Kinetic analysis of microbial adhesion.**Methods Enzymol. 1995;253:179-89. No abstract available.  
PMID: 7476386 [PubMed - indexed for MEDLINE]☐ 2: [Busscher HJ, Cowan MM, van der Mei HC.](#)[Related Articles, Links](#)**On the relative importance of specific and non-specific approaches to oral microbial adhesion.**FEMS Microbiol Rev. 1992 Jun;8(3-4):199-209. Review.  
PMID: 1515160 [PubMed - indexed for MEDLINE]PubMed  
Services☐ 3: [Marshall PA, Loeb GI, Cowan MM, Fletcher M.](#)[Related Articles, Links](#)**Response of microbial adhesives and biofilm matrix polymers to chemical treatments as determined by interference reflection microscopy and light section microscopy.**Appl Environ Microbiol. 1989 Nov;55(11):2827-31.  
PMID: 2624463 [PubMed - indexed for MEDLINE]☐ 4: [Cowan MM, Taylor KG, Doyle RJ.](#)[Related Articles, Links](#)**Role of sialic acid in the kinetics of Streptococcus sanguis adhesion to artificial pellicle.**Infect Immun. 1987 Jul;55(7):1552-7.  
PMID: 3596799 [PubMed - indexed for MEDLINE]Related  
Resources☐ 5: [Cowan MM, Taylor KG, Doyle RJ.](#)[Related Articles, Links](#)**Kinetic analysis of Streptococcus sanguis adhesion to artificial pellicle.**J Dent Res. 1986 Oct;65(10):1278-83.  
PMID: 3020104 [PubMed - indexed for MEDLINE]

Display	Summary	▼	Show: 50	▼	Sort	▼	Send to	Text	▼
Items 1-5 of 5								One page	

[Write to the Help Desk](#)[NCBI](#) | [NLM](#) | [NIH](#)[Department of Health & Human Services](#)[Freedom of Information Act](#) | [Disclaimer](#)

Jun 5 2003 10:08:34



PubMed	Nucleotide	Protein	Genome	Structure	PMC	Taxonomy	OMIM	Books
Search PubMed	▼ for Cowan MM[au]						Go	Clear
Limits		Preview/Index		History		Clipboard		Details

Display	Summary	▼	Show	50	▼	Sort	▼	Send to	Text	▼
Items 1-17 of 17										One page

Entrez PubMed

- ☐
- 1:
- [Cowan MM, Abshire KZ, Houk SL, Evans SM.](#)

Related Articles, Links



Antimicrobial efficacy of a silver-zeolite matrix coating on stainless steel.  
J Ind Microbiol Biotechnol. 2003 Feb;30(2):102-6. Epub 2003 Jan 14.  
PMID: 12612784 [PubMed - in process]

- ☐
- 2:
- [Sethman CR, Doyle RJ, Cowan MM.](#)

Related Articles, Links



Flow cytometric evaluation of adhesion of Streptococcus pyogenes to epithelial cells.  
J Microbiol Methods. 2002 Sep;51(1):35-42.  
PMID: 12069888 [PubMed - indexed for MEDLINE]

- ☐
- 3:
- [Cowan MM, Horst EA, Luengpailin S, Doyle RJ.](#)

Related Articles, Links



Inhibitory effects of plant polyphenoloxidase on colonization factors of Streptococcus sobrinus 6715.  
Antimicrob Agents Chemother. 2000 Sep;44(9):2578-80.  
PMID: 10952624 [PubMed - indexed for MEDLINE]

- ☐
- 4:
- [Cowan MM.](#)

Related Articles, Links



Plant products as antimicrobial agents.  
Clin Microbiol Rev. 1999 Oct;12(4):564-82. Review.  
PMID: 10515903 [PubMed - indexed for MEDLINE]

- ☐
- 5:
- [Cowan MM, Stilling DS, Naumann S, Colborne GR.](#)

Related Articles, Links



Quantification of antagonist muscle coactivation in children with spastic diplegia.  
Clin Anat. 1998;11(5):314-9.  
PMID: 9725575 [PubMed - indexed for MEDLINE]

- ☐
- 6:
- [Cowan MM.](#)

Related Articles, Links



Kinetic analysis of microbial adhesion.  
Methods Enzymol. 1995;253:179-89. No abstract available.  
PMID: 7476386 [PubMed - indexed for MEDLINE]









- ☐
- 7:
- [van Dalen PJ, van Steenberghe TJ, Cowan MM, Busscher HJ, de Graaff J.](#)

Related Articles, Links



Description of two morphotypes of Peptostreptococcus micros.  
Int J Syst Bacteriol. 1993 Oct;43(4):787-93.  
PMID: 8240959 [PubMed - indexed for MEDLINE]

PubMed  
ServicesRelated  
Resources

- ☐ **8:** [Cowan MM, van der Mei HC, Rouxhet PG, Busscher HJ.](#) Related Articles, Links  
 Physico-chemical and structural properties of the surfaces of *Peptostreptococcus micros* and *Streptococcus mitis* as compared to those of *mutans streptococci*, *Streptococcus sanguis* and *Streptococcus salivarius*.  
J Gen Microbiol. 1992 Dec;138 ( Pt 12):2707-14.  
PMID: 1487734 [PubMed - indexed for MEDLINE]
- ☐ **9:** [Cowan MM, Van der Mei HC, Stokroos I, Busscher HJ.](#) Related Articles, Links  
 Heterogeneity of surfaces of subgingival bacteria as detected by zeta potential measurements.  
J Dent Res. 1992 Nov;71(11):1803-6.  
PMID: 1357016 [PubMed - indexed for MEDLINE]
- ☐ **10:** [Busscher HJ, Cowan MM, van der Mei HC.](#) Related Articles, Links  
 On the relative importance of specific and non-specific approaches to oral microbial adhesion.  
FEMS Microbiol Rev. 1992 Jun;8(3-4):199-209. Review.  
PMID: 1515160 [PubMed - indexed for MEDLINE]
- ☐ **11:** [Cowan MM, van der Mei HC, Rouxhet PG, Busscher HJ.](#) Related Articles, Links  
 Physicochemical and structural investigation of the surfaces of some anaerobic subgingival bacteria.  
Appl Environ Microbiol. 1992 Apr;58(4):1326-34.  
PMID: 1599251 [PubMed - indexed for MEDLINE]
- ☐ **12:** [Marshall PA, Loeb GI, Cowan MM, Fletcher M.](#) Related Articles, Links  
 Response of microbial adhesives and biofilm matrix polymers to chemical treatments as determined by interference reflection microscopy and light section microscopy.  
Appl Environ Microbiol. 1989 Nov;55(11):2827-31.  
PMID: 2624463 [PubMed - indexed for MEDLINE]
- ☐ **13:** [Cowan MM, Parrish K, Kessler RE, Pyle C Jr, Taylor KG, Ciardi JE, Doyle RJ.](#) Related Articles, Links  
 Glucan-binding factor in saliva.  
Infect Immun. 1988 Nov;56(11):2912-7.  
PMID: 3169992 [PubMed - indexed for MEDLINE]
- ☐ **14:** [Cowan MM, Taylor KG, Doyle RJ.](#) Related Articles, Links  
 Role of sialic acid in the kinetics of *Streptococcus sanguis* adhesion to artificial pellicle.  
Infect Immun. 1987 Jul;55(7):1552-7.  
PMID: 3596799 [PubMed - indexed for MEDLINE]
- ☐ **15:** [Cowan MM, Taylor KG, Doyle RJ.](#) Related Articles, Links  
 Energetics of the initial phase of adhesion of *Streptococcus sanguis* to hydroxylapatite.  
J Bacteriol. 1987 Jul;169(7):2995-3000.  
PMID: 3036767 [PubMed - indexed for MEDLINE]

☐ **16:** [Cowan MM, Taylor KG, Doyle RJ.](#)

[Related Articles, Links](#)



**Kinetic analysis of Streptococcus sanguis adhesion to artificial pellicle.**

J Dent Res. 1986 Oct;65(10):1278-83.

PMID: 3020104 [PubMed - indexed for MEDLINE]

☐ **17:** [Cowan MM, Gregory LW.](#)

[Related Articles, Links](#)



**Responses of pre- and post-menopausal females to aerobic conditioning.**

Med Sci Sports Exerc. 1985 Feb;17(1):138-43.

PMID: 3982268 [PubMed - indexed for MEDLINE]

Display	Summary	<input type="checkbox"/>	Show: 50	<input type="checkbox"/>	Sort	<input type="checkbox"/>	Send to	Text	<input type="checkbox"/>
Items 1-17 of 17									One page

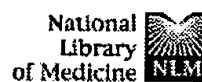
[Write to the Help Desk](#)

[NCBI](#) | [NLM](#) | [NIH](#)

[Department of Health & Human Services](#)

[Freedom of Information Act](#) | [Disclaimer](#)

Jun 5 2003 10:08:34



PubMed	Nucleotide	Protein	Genome	Structure	PMC	Taxonomy	OMIM	Books
Search PubMed	▼ for Doyle RJ[au]						Go	Clear
Limits		Preview/Index		History		Clipboard		Details

Display	Summary	▼	Show: 50	▼	Sort	▼	Send to	Text	▼
Items 1-50 of 166							Page 1	of 4	Next

Entrez PubMed

☐ 1: [Stavri H, Moldovan O, Mihaltan F, Banica D, Doyle RJ](#) [Related Articles, Links](#)**Rapid dot sputum and serum assay in pulmonary tuberculosis.**

J Microbiol Methods. 2003 Mar;52(3):285-96.

PMID: 12531497 [PubMed - indexed for MEDLINE]

2: [Stoitsova SR, Boteva RN, Doyle RJ](#) [Related Articles, Links](#)**Binding of hydrophobic ligands by Pseudomonas aeruginosa PA-I lectin.**

Biochim Biophys Acta. 2003 Jan 20;1619(2):213-9.

PMID: 12527119 [PubMed - indexed for MEDLINE]

PubMed  
Services3: [Kolganova TV, Dzharadat T, Ermolaev AV, Osipova IG, Vasil'eva EA, Dalin MV, Doyle RJ](#) [Related Articles, Links](#)**Combined Effect of Low-Frequency Laser and Polyphenol Oxidase on Adhesive Activity of Escherichia coli Strains Isolated from Patients with Urinary Diseases.**

Bull Exp Biol Med. 2002 Jul;134(1):54-6.

PMID: 12459869 [PubMed - in process]

Related  
Resources4: [Kolganova TV, Dzharadat T, Ermolaev AV, Osipova IG, Vasil'eva EA, Dalin MV, Doyle RJ](#) [Related Articles, Links](#)**Complex Effects of Pulsed Infrared Laser and Asparaginase on Escherichia coli Strains Isolated from Patients with Urinary Diseases.**

Bull Exp Biol Med. 2002 Jun;133(6):591-3.

PMID: 12447475 [PubMed - in process]

5: [Kolganova TV, Ermolaev AV, Doyle RJ](#) [Related Articles, Links](#)**Effects of asparaginase and polyphenol oxidase on adhesive characteristics of microorganisms.**

Bull Exp Biol Med. 2002 Jan;133(1):58-61.

PMID: 12170308 [PubMed - indexed for MEDLINE]

6: [Sethman CR, Doyle RJ, Cowan MM](#) [Related Articles, Links](#)**Flow cytometric evaluation of adhesion of Streptococcus pyogenes to epithelial cells.**











J Microbiol Methods. 2002 Sep;51(1):35-42.










PMID: 12069888 [PubMed - indexed for MEDLINE]

7: [Calamita HG, Doyle RJ](#) [Related Articles, Links](#)**Regulation of autolysins in teichuronic acid-containing Bacillus subtilis cells.**

Mol Microbiol. 2002 May;44(3):601-6.

PMID: 11994144 [PubMed - indexed for MEDLINE]

- ☐ **8:** [Doyle RJ, Kan T.](#) Related Articles, Links  
 Interaction between concanavalin A and heparin.  
FEBS Lett. 1972 Jan 15;20(1):22-24. No abstract available.  
PMID: 11946372 [PubMed - as supplied by publisher]
- ☐ **9:** [Thongboonkerd V, Luengpailin J, Cao J, Pierce WM, Cai J, Klein JB, Doyle RJ.](#) Related Articles, Links  
 Fluoride exposure attenuates expression of Streptococcus pyogenes virulence factors.  
J Biol Chem. 2002 May 10;277(19):16599-605. Epub 2002 Feb 26. Erratum in: J Biol Chem. 2002 Nov 1;277(44):42417..  
PMID: 11867637 [PubMed - indexed for MEDLINE]
- ☐ **10:** [Thuan BP, Calderon de la Barca AM, Buck G, Galsworthy SB, Doyle RJ.](#) Related Articles, Links  
 Interactions between listeriae and lectins.  
Roum Arch Microbiol Immunol. 2000 Jan-Jun;59(1-2):55-61.  
PMID: 11845476 [PubMed - indexed for MEDLINE]
- ☐ **11:** [Cao J, Doyle RJ.](#) Related Articles, Links  
 Fluoride modifies adhesion of Streptococcus pyogenes.  
FEMS Immunol Med Microbiol. 2002 Jan 14;32(2):175-7.  
PMID: 11821240 [PubMed - indexed for MEDLINE]
- ☐ **12:** [Stavri H, Beveridge TJ, Moyles D, Athamna A, Doyle RJ.](#) Related Articles, Links  
 Hemagglutinin of unusual specificity from Helcococcus kunzii.  
Arch Microbiol. 2002 Feb;177(2):197-9. Epub 2001 Dec 07.  
PMID: 11807570 [PubMed - indexed for MEDLINE]
- ☐ **13:** [Calamita HG, Ehringer WD, Koch AL, Doyle RJ.](#) Related Articles, Links  
 Evidence that the cell wall of Bacillus subtilis is protonated during respiration.  
Proc Natl Acad Sci U S A. 2001 Dec 18;98(26):15260-3.  
PMID: 11752466 [PubMed - indexed for MEDLINE]
- ☐ **14:** [Noor AK, Doyle RJ, Venneri SL.](#) Related Articles, Links  
 Bringing life to space exploration.  
Aerosp Am. 1999 Nov;37(11):28-33.  
PMID: 11542653 [PubMed - indexed for MEDLINE]
- ☐ **15:** [Doyle RJ.](#) Related Articles, Links  
 Stains in microbiology and molecular biology.  
Biotech Histochem. 2001 May;76(3):109. No abstract available.  
PMID: 11475312 [PubMed - indexed for MEDLINE]
- ☐ **16:** [Luengpailin S, Luengpailin J, Doyle RJ.](#) Related Articles, Links  
 Detection of streptococcal glucan-binding proteins in biofilms.  
Methods Enzymol. 2001;337:434-9. No abstract available.  
PMID: 11398450 [PubMed - indexed for MEDLINE]
- ☐ **17:** [Goh CT, Taweechaisupapong S, Taylor KG, Doyle RJ.](#) Related Articles, Links  
 Polycarboxylates inhibit the glucan-binding lectin of Streptococcus sobrinus.  
Biochim Biophys Acta. 2000 Sep 1;1523(1):111-6.  
PMID: 11099864 [PubMed - indexed for MEDLINE]

- ☐ **18:** [Cowan MM, Horst EA, Luengpailin S, Doyle RJ.](#) Related Articles, Links  
 **Inhibitory effects of plant polyphenoloxidase on colonization factors of *Streptococcus sobrinus* 6715.**  
Antimicrob Agents Chemother. 2000 Sep;44(9):2578-80.  
PMID: 10952624 [PubMed - indexed for MEDLINE]
- ☐ **19:** [Taweekhaisupapong S, Doyle RJ.](#) Related Articles, Links  
 **Sensitivity of bacterial coaggregation to chelating agents.**  
FEMS Immunol Med Microbiol. 2000 Aug;28(4):343-6.  
PMID: 10891659 [PubMed - indexed for MEDLINE]
- ☐ **20:** [Doyle RJ.](#) Related Articles, Links  
 **Contribution of the hydrophobic effect to microbial infection.**  
Microbes Infect. 2000 Apr;2(4):391-400. Review.  
PMID: 10817641 [PubMed - indexed for MEDLINE]
- ☐ **21:** [Luengpailin S, Banas JA, Doyle RJ.](#) Related Articles, Links  
 **Modulation of glucan-binding protein activity in streptococci by fluoride.**  
Biochim Biophys Acta. 2000 May 1;1474(3):346-52.  
PMID: 10779686 [PubMed - indexed for MEDLINE]
- ☐ **22:** [Luengpailin J, Doyle RJ.](#) Related Articles, Links  
 **Glycine prevents the phenotypic expression of streptococcal glucan-binding lectin.**  
Biochim Biophys Acta. 2000 Apr 6;1474(2):212-8.  
PMID: 10742601 [PubMed - indexed for MEDLINE]
- ☐ **23:** [Reyes GF, Corbett D, Benz FW, Doyle RJ.](#) Related Articles, Links  
 **Acrylonitrile induces autolysis *Bacillus subtilis*.**  
FEMS Microbiol Lett. 2000 Jan 15;182(2):255-8.  
PMID: 10620675 [PubMed - indexed for MEDLINE]
- ☐ **24:** [Srisatjaluk R, Doyle RJ, Justus DE.](#) Related Articles, Links  
 **Outer membrane vesicles of *Porphyromonas gingivalis* inhibit IFN-gamma-mediated MHC class II expression by human vascular endothelial cells.**  
Microb Pathog. 1999 Aug;27(2):81-91.  
PMID: 10458919 [PubMed - indexed for MEDLINE]
- ☐ **25:** [Ciopraga J, Gozia O, Tudor R, Brezuica L, Doyle RJ.](#) Related Articles, Links  
 ***Fusarium* sp. growth inhibition by wheat germ agglutinin.**  
Biochim Biophys Acta. 1999 Aug 5;1428(2-3):424-32.  
PMID: 10434062 [PubMed - indexed for MEDLINE]
- ☐ **26:** [Cox SD, Lassiter MO, Miller BS, Doyle RJ.](#) Related Articles, Links  
 **A new mechanism of action of fluoride on streptococci.**  
Biochim Biophys Acta. 1999 Aug 5;1428(2-3):415-23.  
PMID: 10434061 [PubMed - indexed for MEDLINE]



☐ **27:** [Koch AL, Doyle RJ.](#) Related Articles, Links



Attachment of the chromosome to the cell poles: the strategy for the growth of bacteria in two and three dimensions.

J Theor Biol. 1999 Jul 21;199(2):213-21.

PMID: 10395815 [PubMed - indexed for MEDLINE]

☐ **28:** [Zhou L, Srisatjaluk R, Justus DE, Doyle RJ.](#) Related Articles, Links



On the origin of membrane vesicles in gram-negative bacteria.

FEMS Microbiol Lett. 1998 Jun 15;163(2):223-8.

PMID: 9673026 [PubMed - indexed for MEDLINE]

☐ **29:** [Denson AM, Doyle RJ.](#) Related Articles, Links



Stabilization of the glucan-binding lectin of Streptococcus sobrinus by specific ligand.

Arch Oral Biol. 1998 Jan;43(1):33-8.

PMID: 9569988 [PubMed - indexed for MEDLINE]

☐ **30:** [Lee W, De La Barca AM, Drake D, Doyle RJ.](#) Related Articles, Links



Lectin-oral streptococci interactions.

J Med Microbiol. 1998 Jan;47(1):29-37.

PMID: 9449947 [PubMed - indexed for MEDLINE]

☐ **31:** [Sokurenko EV, Chesnokova V, Doyle RJ, Hasty DL.](#) Related Articles, Links



Diversity of the Escherichia coli type 1 fimbrial lectin. Differential binding to mannosides and uroepithelial cells.

J Biol Chem. 1997 Jul 11;272(28):17880-6.

PMID: 9211945 [PubMed - indexed for MEDLINE]

☐ **32:** [Popescu A, Doyle RJ.](#) Related Articles, Links



The Gram stain after more than a century.

Biotech Histochem. 1996 May;71(3):145-51. Review.

PMID: 8724440 [PubMed - indexed for MEDLINE]

☐ **33:** [Ma Y, Lassiter MO, Banas JA, Galperin MY, Taylor KG, Doyle RJ.](#) Related Articles, Links



Multiple glucan-binding proteins of Streptococcus sobrinus.

J Bacteriol. 1996 Mar;178(6):1572-7.

PMID: 8626283 [PubMed - indexed for MEDLINE]

☐ **34:** [Wang Q, Singh S, Taylor KG, Doyle RJ.](#) Related Articles, Links



Anti-adhesins of Streptococcus sobrinus.

Adv Exp Med Biol. 1996;408:249-62. Review. No abstract available.

PMID: 8895800 [PubMed - indexed for MEDLINE]

☐ **35:** [Singh J, Sonnenfeld G, Doyle RJ.](#) Related Articles, Links



Tetranitromethane as a broad spectrum disinfectant.

Microbios. 1996;85(345):251-6.

PMID: 8699967 [PubMed - indexed for MEDLINE]











☐ **36:** [Wang J, Singh S, Taylor KG, Doyle RJ.](#) Related Articles, Links







Streptococcal glucan-binding lectins do not recognize methylated alpha-1,6 glucans.

Glycoconj J. 1995 Apr;12(2):109-12.

PMID: 7542513 [PubMed - indexed for MEDLINE]

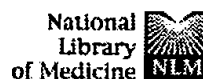
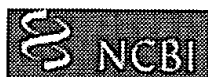
- ☐ **37:** [Wu Q, Wang Q, Taylor KG, Doyle RJ.](#) Related Articles, Links  
 Subinhibitory concentrations of antibiotics affect cell surface properties of *Streptococcus sobrinus*.  
J Bacteriol. 1995 Mar;177(5):1399-401.  
PMID: 7868618 [PubMed - indexed for MEDLINE]
- ☐ **38:** [Galperin MY, Lassiter M, Ma Y, Taylor KG, Doyle RJ.](#) Related Articles, Links  
 Chemiluminescent detection of dextran bound to streptococcal glucan-binding lectin.  
Anal Biochem. 1995 Feb 10;225(1):185-7. No abstract available.  
PMID: 7539984 [PubMed - indexed for MEDLINE]
- ☐ **39:** [Ness-Greenstein RB, Rosenberg M, Doyle RJ, Kaplan N.](#) Related Articles, Links  
 DNA from *Serratia marcescens* confers a hydrophobic character in *Escherichia coli*.  
FEMS Microbiol Lett. 1995 Jan 1;125(1):71-5.  
PMID: 7867922 [PubMed - indexed for MEDLINE]
- ☐ **40:** [Ciopraga J, Motas C, Doyle RJ.](#) Related Articles, Links  
 Inhibition of saliva-induced oral streptococcal aggregation by blood group glycoproteins.  
FEMS Immunol Med Microbiol. 1995 Jan;10(2):145-9.  
PMID: 7719283 [PubMed - indexed for MEDLINE]
- ☐ **41:** [Doyle RJ, Rosenberg M.](#) Related Articles, Links  
 Measurement of microbial adhesion to hydrophobic substrata.  
Methods Enzymol. 1995;253:542-50. No abstract available.  
PMID: 7476418 [PubMed - indexed for MEDLINE]
- ☐ **42:** [Schilling KM, Doyle RJ.](#) Related Articles, Links  
 Bacterial adhesion to hydroxylapatite.  
Methods Enzymol. 1995;253:536-42. No abstract available.  
PMID: 7476417 [PubMed - indexed for MEDLINE]
- ☐ **43:** [Singh JS, Sonnenfeld G, Doyle RJ.](#) Related Articles, Links  
 Tetranitromethane as a surface antiviral disinfectant.  
Antiviral Res. 1994 Dec;25(3-4):281-5.  
PMID: 7710274 [PubMed - indexed for MEDLINE]
- ☐ **44:** [Cox SD, Lassiter MO, Taylor KG, Doyle RJ.](#) Related Articles, Links  
 Fluoride inhibits the glucan-binding lectin of *Streptococcus sobrinus*.  
FEMS Microbiol Lett. 1994 Nov 1;123(3):331-4.  
PMID: 7988914 [PubMed - indexed for MEDLINE]
- ☐ **45:** [Doyle RJ, Marquis RE.](#) Related Articles, Links  
 Elastic, flexible peptidoglycan and bacterial cell wall properties.  
Trends Microbiol. 1994 Feb;2(2):57-60. Review.  
PMID: 8162443 [PubMed - indexed for MEDLINE]
- ☐ **46:** [Mollerach ME, Kemper MA, Gutkind GO, Doyle RJ.](#) Related Articles, Links  
 [The control of cellular autolysis in bacteria]  
Rev Argent Microbiol. 1994 Jan-Mar;26(1):42-53. Review. Spanish. No abstract available.  
PMID: 7938500 [PubMed - indexed for MEDLINE]

- ☐ **47:** [Kemper MA, Urrutia MM, Beveridge TJ, Koch AL, Doyle RJ.](#) [Related Articles, Links](#)  
 Proton motive force may regulate cell wall-associated enzymes of *Bacillus subtilis*.  
J Bacteriol. 1993 Sep;175(17):5690-6.  
PMID: 8396121 [PubMed - indexed for MEDLINE]
- ☐ **48:** [Singh JS, Taylor KG, Doyle RJ.](#) [Related Articles, Links](#)  
 Essential amino acids involved in glucan-dependent aggregation of *Streptococcus sobrinus*.  
Carbohydr Res. 1993 May 21;244(1):137-47.  
PMID: 8339298 [PubMed - indexed for MEDLINE]
- ☐ **49:** [Van der Mei HC, Cox SD, Geertsema-Doornbusch GI, Doyle RJ, Busscher HJ.](#) [Related Articles, Links](#)  
 A critical appraisal of positive cooperativity in oral streptococcal adhesion: Scatchard analyses of adhesion data versus analyses of the spatial arrangement of adhering bacteria.  
J Gen Microbiol. 1993 May;139 ( Pt 5):937-48.  
PMID: 8336110 [PubMed - indexed for MEDLINE]
- ☐ **50:** [Wu TL, Koch AL, Doyle RJ.](#) [Related Articles, Links](#)  
 Anomalies in cell wall turnover associated with the growth temperature of *Bacillus subtilis*.  
Biochim Biophys Acta. 1993 Feb 13;1156(2):173-80.  
PMID: 8094013 [PubMed - indexed for MEDLINE]

Display	Summary	<input type="button" value="v"/>	Show: 50	<input type="button" value="v"/>	Sort	<input type="button" value="v"/>	Send to	Text	<input type="button" value="v"/>
Items 1-50 of 166							Page	1	of 4 Next

[Write to the Help Desk](#)  
[NCBI | NLM | NIH](#)  
[Department of Health & Human Services](#)  
[Freedom of Information Act | Disclaimer](#)

Jun 5 2003 10:08:34



PubMed	Nucleotide	Protein	Genome	Structure	PMC	Taxonomy	OMIM	Books
Search PubMed	▼ for Doyle RJ[au]						Go	Clear
Limits		Preview/Index		History		Clipboard		Details

Display	Summary	▼	Show: 50	▼	Sort	▼	Send to	Text	▼
Items 51-100 of 166						Previous	Page 2	of 4	Next

Entrez PubMed

☐ **51:** [Bauer PD, Trapp C, Drake D, Taylor KG, Doyle RJ.](#) Related Articles, Links


Acquisition of manganous ions by mutans group streptococci.  
J Bacteriol. 1993 Feb;175(3):819-25.  
PMID: 8380803 [PubMed - indexed for MEDLINE]

☐ **52:** [Lu-Lu, Singh JS, Galperin MY, Drake D, Taylor KG, Doyle RJ.](#) Related Articles, Links


Chelating agents inhibit activity and prevent expression of streptococcal glucan-binding lectins.  
Infect Immun. 1992 Sep;60(9):3807-13.  
PMID: 1500189 [PubMed - indexed for MEDLINE]

☐ **53:** [Garber N, Guempel U, Belz A, Gilboa-Garber N, Doyle RJ.](#) Related Articles, Links


On the specificity of the D-galactose-binding lectin (PA-I) of *Pseudomonas aeruginosa* and its strong binding to hydrophobic derivatives of D-galactose and thiogalactose.  
Biochim Biophys Acta. 1992 Jun 12;1116(3):331-3.  
PMID: 1610890 [PubMed - indexed for MEDLINE]

Related Resources

☐ **54:** [Hasty DL, Ofek I, Courtney HS, Doyle RJ.](#) Related Articles, Links


Multiple adhesins of streptococci.  
Infect Immun. 1992 Jun;60(6):2147-52. Review. No abstract available.  
PMID: 1587582 [PubMed - indexed for MEDLINE]

☐ **55:** [Ekwunife FS, Singh J, Taylor KG, Doyle RJ.](#) Related Articles, Links











Isolation and purification of cell wall polysaccharide of *Bacillus anthracis* (delta Sterne).  
FEMS Microbiol Lett. 1991 Aug 15;66(3):257-62.  
PMID: 1769521 [PubMed - indexed for MEDLINE]











☐ **56:** [Goldberg S, Doyle RJ, Rosenberg M.](#) Related Articles, Links












Mechanism of enhancement of microbial cell hydrophobicity by cationic polymers.  
J Bacteriol. 1990 Oct;172(10):5650-4.  
PMID: 2211502 [PubMed - indexed for MEDLINE]











☐ **57:** [Zhang XH, Rosenberg M, Doyle RJ.](#) Related Articles, Links


Inhibition of the cooperative adhesion of *Streptococcus sanguis* to hydroxylapatite.  
FEMS Microbiol Lett. 1990 Sep 15;59(3):315-8.  
PMID: 2177022 [PubMed - indexed for MEDLINE]

- ☐ **58:** [Slifkin M, Doyle RJ.](#) Related Articles, Links  
 **Lectins and their application to clinical microbiology.**  
Clin Microbiol Rev. 1990 Jul;3(3):197-218. Review.  
PMID: 2200603 [PubMed - indexed for MEDLINE]
- ☐ **59:** [McAlister D, Nambiar S, Taylor KG, Doyle RJ.](#) Related Articles, Links  
 **Glucosyltransferases of Streptococcus sobrinus C211 are both stimulated and inhibited by hydrogen peroxide.**  
Oral Microbiol Immunol. 1989 Sep;4(3):146-52.  
PMID: 2534763 [PubMed - indexed for MEDLINE]
- ☐ **60:** [McAlister D, Doyle RJ, Taylor KG.](#) Related Articles, Links  
 **Inhibition by maltose, isomaltose, and nigerose of the synthesis of high-molecular-weight D-glucans by the D-glucosyltransferases of Streptococcus sobrinus.**  
Carbohydr Res. 1989 Apr 1;187(1):131-8.  
PMID: 2526680 [PubMed - indexed for MEDLINE]
- ☐ **61:** [Doyle RJ, Sonnenfeld EM.](#) Related Articles, Links  
 **Properties of the cell surfaces of pathogenic bacteria.**  
Int Rev Cytol. 1989;118:33-92. Review. No abstract available.  
PMID: 2691428 [PubMed - indexed for MEDLINE]
- ☐ **62:** [Doyle RJ, Chaloupka J, Vinter V.](#) Related Articles, Links  
 **Turnover of cell walls in microorganisms.**  
Microbiol Rev. 1988 Dec;52(4):554-67. Review. No abstract available.  
PMID: 3070324 [PubMed - indexed for MEDLINE]
- ☐ **63:** [Cowan MM, Parrish K, Kessler RE, Pyle C Jr, Taylor KG, Ciardi JE, Doyle RJ.](#) Related Articles, Links  
 **Glucan-binding factor in saliva.**  
Infect Immun. 1988 Nov;56(11):2912-7.  
PMID: 3169992 [PubMed - indexed for MEDLINE]
- ☐ **64:** [Kirchner G, Kemper MA, Koch AL, Doyle RJ.](#) Related Articles, Links  
 **Zonal turnover of cell poles of Bacillus subtilis.**  
Ann Inst Pasteur Microbiol. 1988 Nov-Dec;139(6):645-54.  
PMID: 3150939 [PubMed - indexed for MEDLINE]
- ☐ **65:** [Drake D, Taylor KG, Doyle RJ.](#) Related Articles, Links  
 **Expression of the glucan-binding lectin of Streptococcus cricetus requires manganous ion.**  
Infect Immun. 1988 Aug;56(8):2205-7.  
PMID: 3397191 [PubMed - indexed for MEDLINE]
- ☐ **66:** [Drake D, Taylor KG, Bleiweis AS, Doyle RJ.](#) Related Articles, Links  
 **Specificity of the glucan-binding lectin of Streptococcus cricetus.**  
Infect Immun. 1988 Aug;56(8):1864-72.  
PMID: 3397177 [PubMed - indexed for MEDLINE]

- ☐ **67:** Eaves DJ, Doyle RJ. Related Articles, Links  
 **Surface characteristics of *Pseudomonas cepacia*.**  
Microbios. 1988;53(215):119-28.  
PMID: 3374397 [PubMed - indexed for MEDLINE]
- ☐ **68:** Cowan MM, Taylor KG, Doyle RJ. Related Articles, Links  
 **Role of sialic acid in the kinetics of *Streptococcus sanguis* adhesion to artificial pellicle.**  
Infect Immun. 1987 Jul;55(7):1552-7.  
PMID: 3596799 [PubMed - indexed for MEDLINE]
- ☐ **69:** Cowan MM, Taylor KG, Doyle RJ. Related Articles, Links  
 **Energetics of the initial phase of adhesion of *Streptococcus sanguis* to hydroxylapatite.**  
J Bacteriol. 1987 Jul;169(7):2995-3000.  
PMID: 3036767 [PubMed - indexed for MEDLINE]
- ☐ **70:** Doyle RJ, Koch AL. Related Articles, Links  
 **The functions of autolysins in the growth and division of *Bacillus subtilis*.**  
Crit Rev Microbiol. 1987;15(2):169-222. Review.  
PMID: 3123142 [PubMed - indexed for MEDLINE]
- ☐ **71:** Cowan MM, Taylor KG, Doyle RJ. Related Articles, Links  
 **Kinetic analysis of *Streptococcus sanguis* adhesion to artificial pellicle.**  
J Dent Res. 1986 Oct;65(10):1278-83.  
PMID: 3020104 [PubMed - indexed for MEDLINE]
- ☐ **72:** Burnett AM, Ezzell JW Jr, Singh J, Zipperle GF Jr, Doyle RJ. Related Articles, Links  
 **Induced release of *Bacillus* spores from sporangia by sodium sulphate.**  
J Appl Bacteriol. 1986 Apr;60(4):337-9.  
PMID: 3087932 [PubMed - indexed for MEDLINE]
- ☐ **73:** Doyle RJ, Lee NC. Related Articles, Links  
 **Microbes, warfare, religion, and human institutions.**  
Can J Microbiol. 1986 Mar;32(3):193-200.  
PMID: 3518891 [PubMed - indexed for MEDLINE]
- ☐ **74:** Oakley JD, Taylor KG, Doyle RJ. Related Articles, Links  
 **Trypsin-susceptible cell surface characteristics of *Streptococcus sanguis*.**  
Can J Microbiol. 1985 Dec;31(12):1103-7.  
PMID: 3006899 [PubMed - indexed for MEDLINE]
- ☐ **75:** Koch AL, Doyle RJ. Related Articles, Links  
 **Inside-to-outside growth and turnover of the wall of gram-positive rods.**  
J Theor Biol. 1985 Nov 7;117(1):137-57.  
PMID: 3935878 [PubMed - indexed for MEDLINE]
- ☐ **76:** Garber N, Sharon N, Shohet D, Lam JS, Doyle RJ. Related Articles, Links  
 **Contribution of hydrophobicity to hemagglutination reactions of *Pseudomonas aeruginosa*.**  
Infect Immun. 1985 Oct;50(1):336-7.  
PMID: 3930405 [PubMed - indexed for MEDLINE]

- ☐ **77:** [Sonnenfeld EM, Beveridge TJ, Doyle RJ.](#) [Related Articles, Links](#)  
 Discontinuity of charge on cell wall poles of *Bacillus subtilis*.  
Can J Microbiol. 1985 Sep;31(9):875-7.  
PMID: 3936611 [PubMed - indexed for MEDLINE]
- ☐ **78:** [Sonnenfeld EM, Koch AL, Doyle RJ.](#) [Related Articles, Links](#)  
 Cellular location of origin and terminus of replication in *Bacillus subtilis*.  
J Bacteriol. 1985 Sep;163(3):895-9.  
PMID: 3928600 [PubMed - indexed for MEDLINE]
- ☐ **79:** [Sonnenfeld EM, Beveridge TJ, Koch AL, Doyle RJ.](#) [Related Articles, Links](#)  
 Asymmetric distribution of charge on the cell wall of *Bacillus subtilis*.  
J Bacteriol. 1985 Sep;163(3):1167-71.  
PMID: 3928597 [PubMed - indexed for MEDLINE]
- ☐ **80:** [Beveridge TJ, Stewart M, Doyle RJ, Sprott GD.](#) [Related Articles, Links](#)  
 Unusual stability of the *Methanospirillum hungatei* sheath.  
J Bacteriol. 1985 May;162(2):728-37.  
PMID: 3988711 [PubMed - indexed for MEDLINE]
- ☐ **81:** [Koch AL, Kirchner G, Doyle RJ, Burdett ID.](#) [Related Articles, Links](#)  
 How does a *Bacillus* split its septum right down the middle?  
Ann Inst Pasteur Microbiol. 1985 Jan-Feb;136A(1):91-8.  
PMID: 4004149 [PubMed - indexed for MEDLINE]
- ☐ **82:** [Zipperle GF Jr, Ezzell JW Jr, Doyle RJ.](#) [Related Articles, Links](#)  
 Glucosamine substitution and muramidase susceptibility in *Bacillus anthracis*.  
Can J Microbiol. 1984 May;30(5):553-9.  
PMID: 6430537 [PubMed - indexed for MEDLINE]
- ☐ **83:** [Sadler DF, Ezzell JW Jr, Keller KF, Doyle RJ.](#) [Related Articles, Links](#)  
 Glycosidase activities of *Bacillus anthracis*.  
J Clin Microbiol. 1984 May;19(5):594-8.  
PMID: 6429187 [PubMed - indexed for MEDLINE]
- ☐ **84:** [Moblely HL, Koch AL, Doyle RJ, Streips UN.](#) [Related Articles, Links](#)  
 Insertion and fate of the cell wall in *Bacillus subtilis*.  
J Bacteriol. 1984 Apr;158(1):169-79.  
PMID: 6232259 [PubMed - indexed for MEDLINE]
- ☐ **85:** [Doyle RJ, Nedjat-Haiem F, Keller KF, Frasch CE.](#) [Related Articles, Links](#)  
 Diagnostic value of interactions between members of the family Neisseriaceae and lectins.  
J Clin Microbiol. 1984 Mar;19(3):383-7.  
PMID: 6546936 [PubMed - indexed for MEDLINE]
- ☐ **86:** [Cole HB, Ezzell JW Jr, Keller KF, Doyle RJ.](#) [Related Articles, Links](#)  
 Differentiation of *Bacillus anthracis* and other *Bacillus* species by lectins.  
J Clin Microbiol. 1984 Jan;19(1):48-53.  
PMID: 6418761 [PubMed - indexed for MEDLINE]

- ☐ **87:** [Doyle RJ, Koch AL, Carstens PH.](#) Related Articles, Links  
 **Cell wall-DNA association in *Bacillus subtilis*.**  
J Bacteriol. 1983 Mar;153(3):1521-7.  
PMID: 6402501 [PubMed - indexed for MEDLINE]
- ☐ **88:** [Jolliffe LK, Langemeier SO, Doyle RJ.](#) Related Articles, Links  
 **Hydrogen ion control of autolysin-dependent functions in *Bacillus subtilis*.**  
Microbios. 1983;38(153-154):187-94.  
PMID: 6139741 [PubMed - indexed for MEDLINE]
- ☐ **89:** [Nesbitt WE, Doyle RJ, Taylor KG.](#) Related Articles, Links  
 **Hydrophobic interactions and the adherence of *Streptococcus sanguis* to hydroxylapatite.**  
Infect Immun. 1982 Nov;38(2):637-44.  
PMID: 6292108 [PubMed - indexed for MEDLINE]
- ☐ **90:** [Thaniyavarn S, Taylor KG, Singh S, Doyle RJ.](#) Related Articles, Links  
 **Pyridine analogs inhibit the glucosyltransferase of *Streptococcus mutans*.**  
Infect Immun. 1982 Sep;37(3):1101-11.  
PMID: 6215355 [PubMed - indexed for MEDLINE]
- ☐ **91:** [Jolliffe LK, Doyle RJ, Streips UN.](#) Related Articles, Links  
 **Extracellular proteases increase tolerance of *Bacillus subtilis* to nafcillin.**  
Antimicrob Agents Chemother. 1982 Jul;22(1):83-9.  
PMID: 6812497 [PubMed - indexed for MEDLINE]
- ☐ **92:** [Scharff TG, Badr MZ, Doyle RJ.](#) Related Articles, Links  
 **The nature of salicylate inhibition of sugar transport in yeast.**  
Fundam Appl Toxicol. 1982 Jul-Aug;2(4):168-72.  
PMID: 6764430 [PubMed - indexed for MEDLINE]
- ☐ **93:** [Doyle RJ, Sonnenfeld EM, Cost K, Thaniyavarn S.](#) Related Articles, Links  
 **Anti-poly(glycerolphosphate) in human sera.**  
J Clin Microbiol. 1982 Jun;15(6):1169-71. No abstract available.  
PMID: 7107847 [PubMed - indexed for MEDLINE]
- ☐ **94:** [Beveridge TJ, Forsberg CW, Doyle RJ.](#) Related Articles, Links  
 **Major sites of metal binding in *Bacillus licheniformis* walls.**  
J Bacteriol. 1982 Jun;150(3):1438-48.  
PMID: 7076624 [PubMed - indexed for MEDLINE]
- ☐ **95:** [Doyle RJ, Motley MA, Carstens PH.](#) Related Articles, Links  
 **Turnover of cell wall in *Listeria monocytogenes*.**  
Carbohydr Res. 1982 Jun 1;104(1):147-52. No abstract available.  
PMID: 6811135 [PubMed - indexed for MEDLINE]
- ☐ **96:** [Koch AL, Higgins ML, Doyle RJ.](#) Related Articles, Links  
 **The role of surface stress in the morphology of microbes.**  
J Gen Microbiol. 1982 May;128 (Pt 5):927-45.  
PMID: 6809889 [PubMed - indexed for MEDLINE]



☐ **97:** [Doyle RJ, Nedjat-Haiem F, Miller RD, Keller KF.](#) [Related Articles, Links](#)



**Interaction between plant agglutinins and Legionella species.**

J Clin Microbiol. 1982 May;15(5):973-5.

PMID: 6808023 [PubMed - indexed for MEDLINE]

☐ **98:** [Davidson SK, Keller KF, Doyle RJ.](#) [Related Articles, Links](#)



**Differentiation of coagulase-positive and coagulase-negative staphylococci by lectins and plant agglutinins.**

J Clin Microbiol. 1982 Apr;15(4):547-53.

PMID: 7068834 [PubMed - indexed for MEDLINE]

☐ **99:** [Mobley HL, Doyle RJ, Streips UN, Langemeier SO.](#) [Related Articles, Links](#)



**Transport and incorporation of N-acetyl-D-glucosamine in Bacillus subtilis.**

J Bacteriol. 1982 Apr;150(1):8-15.

PMID: 6174502 [PubMed - indexed for MEDLINE]

☐ **100:** [Harding GB, Doyle RJ, Westphal U.](#) [Related Articles, Links](#)



**Specificity and stability of guinea pig anti-progesterone antibodies.**

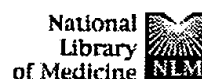
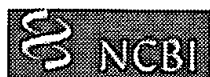
Mol Immunol. 1982 Feb;19(2):267-79.

PMID: 7099166 [PubMed - indexed for MEDLINE]

Display	Summary	▼	Show: 50	▼	Sort	▼	Send to	Text	▼
Items 51-100 of 166					Previous Page 2 of 4 Next				

[Write to the Help Desk](#)  
[NCBI](#) | [NLM](#) | [NIH](#)  
[Department of Health & Human Services](#)  
[Freedom of Information Act](#) | [Disclaimer](#)

Jun 5 2003 10:08:34



PubMed	Nucleotide	Protein	Genome	Structure	PMC	Taxonomy	OMIM	Books
Search PubMed	▼ for Doyle RJ[au]						Go	Clear
Limits		Preview/Index		History		Clipboard		Details

Display	Summary	▼	Show: 50	▼	Sort	▼	Send to	Text	▼
Items 101-150 of 166					Previous		Page 3	of 4 Next	

Entrez PubMed

☐ **101:** Nesbitt WE, Doyle RJ, Taylor KG, Staat RH, Arnold RR. [Related Articles, Links](#)

☐ Positive cooperativity in the binding of *Streptococcus sanguis* to hydroxylapatite.  
Infect Immun. 1982 Jan;35(1):157-65. No abstract available.  
PMID: 6172378 [PubMed - indexed for MEDLINE]

PubMed  
Services☐ **102:** Delivanis PD, Snowden RB, Doyle RJ. [Related Articles, Links](#)

☐ Localization of blood-borne bacteria in instrumented unfilled root canals.  
Oral Surg Oral Med Oral Pathol. 1981 Oct;52(4):430-2.  
PMID: 6795558 [PubMed - indexed for MEDLINE]

☐ **103:** Thaniyavarn S, Singh S, Maynard CM, Taylor KG, Doyle RJ. [Related Articles, Links](#)

☐ Amino sugars: a new class of inhibitors of dextranucrase.  
Carbohydr Res. 1981 Oct 1;96(1):134-7. No abstract available.  
PMID: 6170432 [PubMed - indexed for MEDLINE]

Related  
Resources☐ **104:** Scharff TG, Badr M, Doyle RJ, Zaleski C. [Related Articles, Links](#)

☐ Antagonism between salicylic acid and glucose in *Saccharomyces cerevisiae*.  
Toxicol Appl Pharmacol. 1981 Sep 30;60(3):485-91. No abstract available.  
PMID: 7027537 [PubMed - indexed for MEDLINE]

☐ **105:** Jolliffe LK, Doyle RJ, Streips UN. [Related Articles, Links](#)










☐ The energized membrane and cellular autolysis in *Bacillus subtilis*.  
Cell. 1981 Sep;25(3):753-63.  
PMID: 6793239 [PubMed - indexed for MEDLINE]










☐ **106:** Doyle RJ, Nesbitt WE, Alley T, Staat RH, Taylor KG. [Related Articles, Links](#)

☐ Incorporation of 2-acetamido-2-deoxy-D-glucose into the peptidoglycan of *Streptococcus mutans*.  
Carbohydr Res. 1981 Jul 1;93(2):308-11. No abstract available.  
PMID: 7020938 [PubMed - indexed for MEDLINE]











☐ **107:** Kubitschek HE, Doyle RJ. [Related Articles, Links](#)

☐ Growth delay induced in *Escherichia coli* by near-ultraviolet radiation: relationship to membrane transport functions.  
Photochem Photobiol. 1981 May;33(5):695-702. No abstract available.  
PMID: 7022490 [PubMed - indexed for MEDLINE]

- ☐ **108:** Koch AL, Higgins ML, Doyle RJ. Related Articles, Links  
 Surface tension-like forces determine bacterial shapes: *Streptococcus faecium*.  
J Gen Microbiol. 1981 Mar;123(Pt 1):151-61.  
PMID: 7320694 [PubMed - indexed for MEDLINE]
- ☐ **109:** White TB, Doyle RJ, Streips UN. Related Articles, Links  
 Transformation of a *Bacillus subtilis* L-form with bacteriophage deoxyribonucleic acid.  
J Bacteriol. 1981 Feb;145(2):878-83.  
PMID: 6780533 [PubMed - indexed for MEDLINE]
- ☐ **110:** Doyle RJ, Streips UN, Imada S, Fan VS, Brown WC. Related Articles, Links  
 Genetic transformation with cell wall-associated deoxyribonucleic acid in *Bacillus subtilis*.  
J Bacteriol. 1980 Dec;144(3):957-66.  
PMID: 6777372 [PubMed - indexed for MEDLINE]
- ☐ **111:** Doyle RJ, Matthews TH, Streips UN. Related Articles, Links  
 Chemical basis for selectivity of metal ions by the *Bacillus subtilis* cell wall.  
J Bacteriol. 1980 Jul;143(1):471-80.  
PMID: 6772632 [PubMed - indexed for MEDLINE]
- ☐ **112:** Stroupe SD, Doyle RJ. Related Articles, Links  
 Kinetic analysis of calcium binding to concanavalin A.  
J Inorg Biochem. 1980 Apr;12(2):173-8.  
PMID: 7441246 [PubMed - indexed for MEDLINE]
- ☐ **113:** Nesbitt WE, Staat RH, Rosan B, Taylor KG, Doyle RJ. Related Articles, Links  
 Association of protein with the cell wall of *Streptococcus mutans*.  
Infect Immun. 1980 Apr;28(1):118-26.  
PMID: 7380560 [PubMed - indexed for MEDLINE]
- ☐ **114:** Jolliffe LK, Doyle RJ, Streips UN. Related Articles, Links  
 Extracellular proteases modify cell wall turnover in *Bacillus subtilis*.  
J Bacteriol. 1980 Mar;141(3):1199-208.  
PMID: 6102558 [PubMed - indexed for MEDLINE]
- ☐ **115:** Staat RH, Langley SD, Doyle RJ. Related Articles, Links  
 *Streptococcus mutans* adherence: presumptive evidence for protein-mediated attachment followed by glucan-dependent cellular accumulation.  
Infect Immun. 1980 Feb;27(2):675-81. No abstract available.  
PMID: 7380545 [PubMed - indexed for MEDLINE]
- ☐ **116:** Meade NA, Staat RH, Langley SD, Doyle RJ. Related Articles, Links  
 Lectin-like activity from *Persea americana*.  
Carbohydr Res. 1980 Jan 15;78(2):349-63.  
PMID: 7353211 [PubMed - indexed for MEDLINE]

- ☐ **117:** [Schaefer RL, Keller KF, Doyle RJ.](#) Related Articles, Links  
 Lectins in diagnostic microbiology: use of wheat germ agglutinin for laboratory identification of *Neisseria gonorrhoeae*.  
J Clin Microbiol. 1979 Nov;10(5):669-72.  
PMID: 94598 [PubMed - indexed for MEDLINE]
- ☐ **118:** [Glew RH, Doyle RJ.](#) Related Articles, Links  
 Protection of sodium dodecyl sulfate-induced aggregation of concanavalin A by saccharide ligands.  
Carbohydr Res. 1979 Aug;73:219-26.  
PMID: 476724 [PubMed - indexed for MEDLINE]
- ☐ **119:** [Horowitz S, Doyle RJ, Young FE, Streips UN.](#) Related Articles, Links  
 Selective association of the chromosome with membrane in a stable L-form of *Bacillus subtilis*.  
J Bacteriol. 1979 Jun;138(3):915-22.  
PMID: 110772 [PubMed - indexed for MEDLINE]
- ☐ **120:** [Doyle RJ, Stroupe SD.](#) Related Articles, Links  
 Perturbation of the calcium-binding site in concanavalin A by a saccharide ligand.  
Carbohydr Res. 1978 Dec;67(2):545-8. No abstract available.  
PMID: 728916 [PubMed - indexed for MEDLINE]
- ☐ **121:** [Doyle RJ, Stroupe SD.](#) Related Articles, Links  
 Inhibition of concanavalin A by (ethylenedinitrilo) tetraacetic acid.  
Carbohydr Res. 1978 Jul;64:327-33. No abstract available.  
PMID: 98233 [PubMed - indexed for MEDLINE]
- ☐ **122:** [Horowitz S, Mansfield JM, Thomasson DL, Doyle RJ.](#) Related Articles, Links  
 Immunobiological properties of a concanavalin A derivative.  
Cell Immunol. 1978 Jun;38(1):214-8. No abstract available.  
PMID: 667956 [PubMed - indexed for MEDLINE]
- ☐ **123:** [Doyle RJ, Smith CS, Cronholm LS.](#) Related Articles, Links  
 Histamine hypersensitivity in mice induced by concanavalin A.  
J Allergy Clin Immunol. 1978 Feb;61(2):108-14.  
PMID: 621347 [PubMed - indexed for MEDLINE]
- ☐ **124:** [Staat RH, Doyle RJ, Langley SD, Suddick RP.](#) Related Articles, Links  
 Modification of in vitro adherence of *Streptococcus mutans* by plant lectins.  
Adv Exp Med Biol. 1978;107:639-47.  
PMID: 742505 [PubMed - indexed for MEDLINE]
- ☐ **125:** [Crabb WD, Streips UN, Doyle RJ.](#) Related Articles, Links  
 Selective enrichment for genetic markers in DNA released by competent cultures of *Bacillus subtilis*.  
Mol Gen Genet. 1977 Oct 20;155(2):179-83.  
PMID: 412055 [PubMed - indexed for MEDLINE]

- ☐ **126:** [Chatterjee AN, Doyle RJ, Streips UN.](#) Related Articles, Links  
☐ A proposed functional role for bacterial N-acetylmuramyl-L-alanine amidases.  
J Theor Biol. 1977 Oct 7;68(3):385-90. No abstract available.  
PMID: 599942 [PubMed - indexed for MEDLINE]
- ☐ **127:** [Doyle RJ, Streips UN, Fan VS, Brown WC, Mobley H, Mansfield JM.](#) Related Articles, Links  
☐ Cell wall protein in *Bacillus subtilis*.  
J Bacteriol. 1977 Jan;129(1):547-9. No abstract available.  
PMID: 401503 [PubMed - indexed for MEDLINE]
- ☐ **128:** [Doyle RJ, Kubitschek HE.](#) Related Articles, Links  
☐ Near ultraviolet light inactivation of an energy-independent membrane transport system in *Saccharomyces cerevisiae*.  
Photochem Photobiol. 1976 Sep;24(3):291-3. No abstract available.  
PMID: 790415 [PubMed - indexed for MEDLINE]
- ☐ **129:** [Zeman GH, Rao GU, Doyle RJ.](#) Related Articles, Links  
☐ A circular test pattern for evaluating x-ray tube focal spots.  
Am J Roentgenol. 1976 Jun;126(6):1239-45.  
PMID: 179388 [PubMed - indexed for MEDLINE]
- ☐ **130:** [Koch AL, Doyle RJ, Kubitschek HE.](#) Related Articles, Links  
☐ Inactivation of membrane transport in *Escherichia coli* by near-ultraviolet light.  
J Bacteriol. 1976 Apr;126(1):140-6.  
PMID: 770419 [PubMed - indexed for MEDLINE]
- ☐ **131:** [Keller KF, Doyle RJ.](#) Related Articles, Links  
☐ A mechanism for tobacco smoke-induced allergy.  
J Allergy Clin Immunol. 1976 Mar;57(3):278-82.  
PMID: 2631 [PubMed - indexed for MEDLINE]
- ☐ **132:** [Doyle RJ, Thomasson DL, Nicholson SK.](#) Related Articles, Links  
☐ Stabilization of concanavalin A by metal ligands.  
Carbohydr Res. 1976 Jan;46(1):111-8.  
PMID: 1248012 [PubMed - indexed for MEDLINE]
- ☐ **133:** [Brown WC, Doyle RJ, Streips UN.](#) Related Articles, Links  
☐ Comparison of various procedures for removing proteins and nucleic acids from cell walls of *Bacillus subtilis*.  
Prep Biochem. 1976;6(6):479-88.  
PMID: 826899 [PubMed - indexed for MEDLINE]
- ☐ **134:** [Thomasson DL, Doyle RJ.](#) Related Articles, Links  
☐ Monovalent concanavalin A.  
Biochem Biophys Res Commun. 1975 Dec 15;67(4):1545-52. No abstract available.  
PMID: 812504 [PubMed - indexed for MEDLINE]

- ☐ **135:** [Doyle RJ, Chatterjee AN, Streips UN, Young FE.](#) [Related Articles, Links](#)  
 Soluble macromolecular complexes involving bacterial teichoic acids.  
J Bacteriol. 1975 Oct;124(1):341-7.  
PMID: 240807 [PubMed - indexed for MEDLINE]
- ☐ **136:** [Doyle RJ, Thomasson DL, Gray RD.](#) [Related Articles, Links](#)  
 Spectral changes accompanying the interaction between metal ligands and concanavalin A.  
FEBS Lett. 1975 Apr 1;52(2):185-7. No abstract available.  
PMID: 1132473 [PubMed - indexed for MEDLINE]
- ☐ **137:** [Doyle RJ, McDannel ML, Helman JR, Streips UN.](#) [Related Articles, Links](#)  
 Distribution of teichoic acid in the cell wall of *Bacillus subtilis*.  
J Bacteriol. 1975 Apr;122(1):152-8.  
PMID: 804466 [PubMed - indexed for MEDLINE]
- ☐ **138:** [Birdsell DC, Doyle RJ, Morgenstern M.](#) [Related Articles, Links](#)  
 Organization of teichoic acid in the cell wall of *Bacillus subtilis*.  
J Bacteriol. 1975 Feb;121(2):726-34.  
PMID: 803488 [PubMed - indexed for MEDLINE]
- ☐ **139:** [Doyle RJ, McDannel ML, Streips UN, Birdsell DC, Young FE.](#) [Related Articles, Links](#)  
 Polyelectrolyte nature of bacterial teichoic acids.  
J Bacteriol. 1974 May;118(2):606-15. No abstract available.  
PMID: 4208136 [PubMed - indexed for MEDLINE]
- ☐ **140:** [Kan TJ, Doyle RJ.](#) [Related Articles, Links](#)  
 Mechanism of the formation of concanavalin A-teichoic acid complexes.  
Carbohydr Res. 1973 Dec;31(2):401-4. No abstract available.  
PMID: 4206131 [PubMed - indexed for MEDLINE]
- ☐ **141:** [Thomasson DL, Mansfield JM, Doyle RJ, Wallace JH.](#) [Related Articles, Links](#)  
 C-reactive protein levels in experimental African trypanosomiasis.  
J Parasitol. 1973 Aug;59(4):738-9. No abstract available.  
PMID: 4722595 [PubMed - indexed for MEDLINE]
- ☐ **142:** [Doyle RJ, Nicholson SK, Gray RD.](#) [Related Articles, Links](#)  
 Carbohydrate-induced conformational change in concanavalin A.  
Carbohydr Res. 1973 Jul;29(1):265-70. No abstract available.  
PMID: 4751278 [PubMed - indexed for MEDLINE]
- ☐ **143:** [Kalsow CM, Doyle RJ.](#) [Related Articles, Links](#)  
 Facilitated diffusion of monosaccharides in *Saccharomyces cerevisiae*: experimental investigation of kinetic parameters without the assumptions of symmetry.  
J Bacteriol. 1973 Feb;113(2):612-8. No abstract available.  
PMID: 4570600 [PubMed - indexed for MEDLINE]
- ☐ **144:** [Doyle RJ.](#) [Related Articles, Links](#)  
 Modification of bacteriophage phi 25 adsorption to *Bacillus subtilis* by concanavalin A.  
J Bacteriol. 1973 Jan;113(1):198-202. No abstract available.  
PMID: 4631705 [PubMed - indexed for MEDLINE]

☐ **145:** [Doyle RJ, Birdsell DC, Young FE.](#)

[Related Articles, Links](#)



Isolation of the teichoic acid of *Bacillus subtilis* 168 by affinity chromatography.

Prep Biochem. 1973;3(1):13-8. No abstract available.

PMID: 4199049 [PubMed - indexed for MEDLINE]

☐ **146:** [Doyle RJ, Birdsell DC.](#)

[Related Articles, Links](#)



Interaction of concanavalin A with the cell wall of *Bacillus subtilis*.

J Bacteriol. 1972 Feb;109(2):652-8. No abstract available.

PMID: 4621684 [PubMed - indexed for MEDLINE]

☐ **147:** [Kalsow CM, Doyle RJ.](#)

[Related Articles, Links](#)



Facilitated diffusion of monosaccharides in *Saccharomyces cerevisiae*. I.

Theoretical considerations of asymmetry.

J Theor Biol. 1972 Jan;34(1):125-33. No abstract available.

PMID: 4552768 [PubMed - indexed for MEDLINE]

☐ **148:** [Doyle RJ, West R, Hobbs AG.](#)

[Related Articles, Links](#)



olid state switching in x-ray exposure circuits.

Br J Radiol. 1971 Mar;44(519):228. No abstract available.

PMID: 5548808 [PubMed - indexed for MEDLINE]

☐ **149:** [Doyle RJ, Cronholm L.](#)

[Related Articles, Links](#)



A model antigen-antibody system for classroom use.

J Chem Educ. 1969 Dec;46(12):868-9. No abstract available.

PMID: 5356709 [PubMed - indexed for MEDLINE]

☐ **150:** [Cronholm LS, Doyle RJ, Fishel CW.](#)

[Related Articles, Links](#)



Concanavalin A-induced sensitization of mice to histamine.

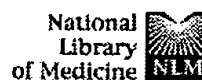
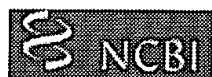
Proc Soc Exp Biol Med. 1969 Oct;132(1):88-90. No abstract available.

PMID: 4310181 [PubMed - indexed for MEDLINE]

Display	Summary	▼	Show	50	▼	Sort	▼	Send to	Text	▼
Items 101-150 of 166						Previous Page 3 of 4 Next				

[Write to the Help Desk](#)  
[NCBI](#) | [NLM](#) | [NIH](#)  
[Department of Health & Human Services](#)  
[Freedom of Information Act](#) | [Disclaimer](#)

Jun 5 2003 10:08:34



PubMed	Nucleotide	Protein	Genome	Structure	PMC	Taxonomy	OMIM	Books	
Search PubMed	▼ for Doyle RJ[au]		Go			Clear			
Limits		Preview/Index		History		Clipboard		Details	

Display	Summary	▼	Show: 50	▼	Sort	▼	Send to	Text	▼
Items 151-166 of 166						Previous		Page 4	of 4

Entrez PubMed

☐ 151: [Doyle RJ, Woodside EE, Fishel CW.](#)[Related Articles, Links](#)

Macromolecular interactions in organic solvents.

Life Sci. 1969 Sep 15;8(18):955-9. No abstract available.

PMID: 5346947 [PubMed - indexed for MEDLINE]

☐ 152: [Doyle RJ, Woodside EE, Fishel CW.](#)[Related Articles, Links](#)

Anomalous protein-polysaccharide solubilities in trichloroacetic acid-ethanol solutions.

Life Sci. 1969 Feb 15;8(4):121-7. No abstract available.

PMID: 5777626 [PubMed - indexed for MEDLINE]

☐ 153: [Spoerl E, Doyle RJ.](#)[Related Articles, Links](#)

Selective enhancement of glycolytic activity by incubation of yeast cells in sugars and polyols.

Can J Microbiol. 1968 Nov;14(11):1245-52. No abstract available.

PMID: 4302127 [PubMed - indexed for MEDLINE]

☐ 154: [Spoerl E, Doyle RJ.](#)[Related Articles, Links](#)

Inhibition by methylphenidate of transport across the yeast cell membrane.

J Bacteriol. 1968 Sep;96(3):744-50. No abstract available.

PMID: 5732507 [PubMed - indexed for MEDLINE]

☐ 155: [Doyle RJ, Roholt OA.](#)[Related Articles, Links](#)

Tyrosyl involvement in the concanavalin A-polysaccharide precipitin reaction.

Life Sci. 1968 Aug 15;7(16):841-6. No abstract available.

PMID: 5672306 [PubMed - indexed for MEDLINE]

☐ 156: [Spoerl E, Doyle RJ.](#)[Related Articles, Links](#)

Intracellular binding of sugars by yeast cells after pre-incubation with sugars and polyols.

Curr Mod Biol. 1968 Jul-Aug;2(3):158-64. No abstract available.

PMID: 5667601 [PubMed - indexed for MEDLINE]

☐ 157: [Doyle RJ, Bello J.](#)[Related Articles, Links](#)

Ultraviolet absorbance changes accompanying the denaturation of soluble collagen and antelocollagen.

Biochem Biophys Res Commun. 1968 Jun 28;31(6):869-76. No abstract available.

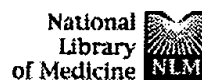
PMID: 5668182 [PubMed - indexed for MEDLINE]

PubMed  
ServicesRelated  
Resources



- ☐ **158:** [Doyle RJ, Bello J, Roholt OA.](#) Related Articles, Links  
☐ Probable protein crosslinking with tetranitromethane.  
Biochim Biophys Acta. 1968 Jun 26;160(2):274-6. No abstract available.  
PMID: 4173111 [PubMed - indexed for MEDLINE]
- ☐ **159:** [Doyle RJ, Spoerl E.](#) Related Articles, Links  
☐ Sugar retention, cofactor levels, and leakage of metabolites in x-irradiated, starved yeast cells.  
Radiat Res. 1968 May;34(2):326-34. No abstract available.  
PMID: 4384802 [PubMed - indexed for MEDLINE]
- ☐ **160:** [Doyle RJ, Woodside EE, Fishel CW.](#) Related Articles, Links  
☐ Protein-polyelectrolyte interactions. The concanavalin A precipitin reaction with polyelectrolytes and polysaccharide derivatives.  
Biochem J. 1968 Jan;106(1):35-40. No abstract available.  
PMID: 5721469 [PubMed - indexed for MEDLINE]
- ☐ **161:** [Spoerl E, Doyle RJ.](#) Related Articles, Links  
☐ The influence of some hexitols and sugars on CO-2 production by starved and x-irradiated, starved yeast cells.  
Can J Microbiol. 1967 Jul;13(7):811-7. No abstract available.  
PMID: 6036885 [PubMed - indexed for MEDLINE]
- ☐ **162:** [Doyle RJ, Burgan HM.](#) Related Articles, Links  
☐ Use of ultraviolet absorption for determination of sugars.  
Anal Biochem. 1966 Oct;17(1):171-4. No abstract available.  
PMID: 5969570 [PubMed - indexed for MEDLINE]
- ☐ **163:** [Woodside EE, Trott GF, Doyle RJ, Fishel CW.](#) Related Articles, Links  
☐ Polyglucose-protein complexes.  
Arch Biochem Biophys. 1966 Oct;117(1):25-33. No abstract available.  
PMID: 4291341 [PubMed - indexed for MEDLINE]
- ☐ **164:** [Woodside EE, Trott GF, Doyle RJ, Fishel CW.](#) Related Articles, Links  
☐ Polyglucose-protein complexes.  
Arch Biochem Biophys. 1966 Oct;117(1):125-33. No abstract available.  
PMID: 4291340 [PubMed - indexed for MEDLINE]
- ☐ **165:** [Spoerl E, Doyle RJ.](#) Related Articles, Links  
☐ Glucose control of an x-radiation induced difference in CO-2 production by yeast cells.  
Life Sci. 1965 Oct;4(19):1843-8. No abstract available.  
PMID: 5848069 [PubMed - indexed for MEDLINE]
- ☐ **166:** [Spoerl E, Doyle RJ, Thompson ME.](#) Related Articles, Links  
☐ Limiting factors involved in CO2 production by starved and x-irradiated starved yeast cells.  
J Cell Physiol. 1965 Apr;65(2):271-6. No abstract available.  
PMID: 5834564 [PubMed - indexed for MEDLINE]

Display	Summary	▼	Show: 50	▼	Sort	▼	Send to	Text	▼
Items 151-166 of 166						Previous	Page	4	of 4



PubMed	Nucleotide	Protein	Genome	Structure	PMC	Taxonomy	OMIM	Books
Search	PubMed	<input type="text"/>	for	<input type="text"/>	Go	Clear		
Limits Preview/Index History Clipboard Details								
Display	Abstract	<input type="text"/>	Show: 20	<input type="text"/>	Sort	<input type="text"/>	Send to	Text

☐ 1: Bull Exp Biol Med. 2002 Jul;134(1):54-6.

[Related Articles, Links](#)

Entrez PubMed

## Combined Effect of Low-Frequency Laser and Polyphenol Oxidase on Adhesive Activity of Escherichia coli Strains Isolated from Patients with Urinary Diseases.

PubMed  
Services

Kolganova TV, Dzharadat T, Ermolaev AV, Osipova IG, Vasil'eva EA, Dalin MV, Doyle RJ.

Russian University of Peoples' Friendship, Moscow; Department of Microbiology and Immunology, Medical Center, University of Louisville, Kentucky, USA; L. A. Tarasevich State Institute of Standardization and Control of Biomedical Preparations, Moscow.

The effects of polyphenol oxidase and low-frequency laser irradiation on adhesion of pathogenic Escherichia coli to human erythrocytes and buccal epithelial cells were studied. The maximum decrease in adhesive activity of these strains was observed after complex exposure to laser and enzyme.

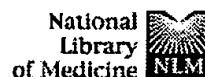
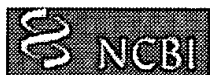
Related  
Resources

PMID: 12459869 [PubMed - in process]

Display	Abstract	<input type="text"/>	Show: 20	<input type="text"/>	Sort	<input type="text"/>	Send to	Text	<input type="text"/>
---------	----------	----------------------	----------	----------------------	------	----------------------	---------	------	----------------------

[Write to the Help Desk](#)  
[NCBI](#) | [NLM](#) | [NIH](#)  
[Department of Health & Human Services](#)  
[Freedom of Information Act](#) | [Disclaimer](#)

Jun 5 2003 10:08:34



PubMed	Nucleotide	Protein	Genome	Structure	PMC	Taxonomy	OMIM	Books
Search PubMed	▼ for						Go	Clear
Limits		Preview/Index		History		Clipboard		Details

Display	Abstract	▼	Show: 20	▼	Sort	▼	Send to	Text	▼
---------	----------	---	----------	---	------	---	---------	------	---

☐ 1: Bull Exp Biol Med. 2002 Jan;133(1):58-61.

[Related Articles, Links](#)

Entrez PubMed

## Effects of asparaginase and polyphenol oxidase on adhesive characteristics of microorganisms.

Kolganova TV, Ermolaev AV, Doyle RJ.

PubMed  
Services

Department of Microbiology, Russian University of Peoples' Friendship, Moscow.

We studied the effects of polyphenol oxidase and asparaginase on microorganism adhesion to buccal epithelial cells. These enzymes reduced adhesion of pathogenic microorganisms (uropathogenic and Escherichia coli, Salmonella enteritidis, Entamoeba spp., Influenza virus, Candida albicans, Streptococcus spp.) and had virtually no effect on adhesive characteristics of probiotic variants of Escherichia coli and Lactobacillus fermentum.

PMID: 12170308 [PubMed - indexed for MEDLINE]

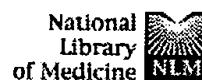
Related  
Resources

Display	Abstract	▼	Show: 20	▼	Sort	▼	Send to	Text	▼
---------	----------	---	----------	---	------	---	---------	------	---

[Write to the Help Desk](#)  
[NCBI](#) | [NLM](#) | [NIH](#)  
[Department of Health & Human Services](#)  
[Freedom of Information Act](#) | [Disclaimer](#)

Jun 5 2003 10:08:34

0



PubMed	Nucleotide	Protein	Genome	Structure	PMC	Taxonomy	OMIM	Books	
Search	PubMed	▼	for					Go	Clear
Limits   Preview/Index   History   Clipboard   Details									

Display	Abstract	▼	Show: 20	▼	Sort	▼	Send to	Text	▼
---------	----------	---	----------	---	------	---	---------	------	---

Entrez PubMed ☐ 1: Antimicrob Agents Chemother. 2000 Sep;44(9):2578-80.   Related Articles, Links

FREE full text article at  
[aac.asm.org](http://aac.asm.org)

## Inhibitory effects of plant polyphenoloxidase on colonization factors of *Streptococcus sobrinus* 6715.

Cowan MM, Horst EA, Luengpailin S, Doyle RJ.

PubMed  
Services

Department of Microbiology, Miami University, Oxford, Ohio 45056, USA.  
[cowanmm@muohio.edu](mailto:cowanmm@muohio.edu)

Exogenously added polyphenoloxidase (EC 1.14.18.1), an enzyme which oxidizes tyrosine residues and is commonly found in many dietary components, abolished the aggregation of *Streptococcus sobrinus* 6715 by high-molecular-weight dextran. The enzyme decreased glucan-binding lectin and/or glucosyltransferase I activities.

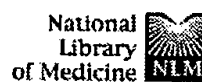
PMID: 10952624 [PubMed - indexed for MEDLINE]

Related  
Resources

Display	Abstract	▼	Show: 20	▼	Sort	▼	Send to	Text	▼
---------	----------	---	----------	---	------	---	---------	------	---

[Write to the Help Desk](#)  
[NCBI](#) | [NLM](#) | [NIH](#)  
[Department of Health & Human Services](#)  
[Freedom of Information Act](#) | [Disclaimer](#)

Jun 5 2003 10:08:34



PubMed	Nucleotide	Protein	Genome	Structure	PMC	Taxonomy	OMIM	Books
Search PubMed	▼ for						Go	Clear
Limits		Preview/Index		History	Clipboard	Details		

Display	Abstract	▼	Show: 20	▼	Sort	▼	Send to	Text	▼
---------	----------	---	----------	---	------	---	---------	------	---

Entrez PubMed

☐ 1: Crit Rev Food Sci Nutr. 1981;15(1):49-127.[Related Articles, Links](#)

## Polyphenol oxidase and peroxidase in fruits and vegetables.

Vamos-Vigyazo L.

PubMed  
Services

Polyphenol oxidases and peroxidases are among the most studied enzymes in fruits and vegetables. Owing to the deleterious effects of discoloration and off-flavor formation induced by their actions, these enzymes have not ceased to be a matter of concern to food technologists, while their versatility as catalyst and their diversity as protein present a challenge to the biochemist. This article gives an account on the present state of knowledge in this field. The occurrence of polyphenol oxidases and peroxidases in food and food raw materials, and their role and importance in food processing are briefly outlined. Results of biochemical research including catalytic properties, substrate specificity, susceptibility towards pH and temperature, action of inhibitors, isolation, purification, and characteristics of the enzymes are given, with special emphasis on recent achievements based on high resolution separation and isoenzyme techniques. Finally, the behavior of polyphenol oxidase and peroxidase in selected major groups of fruits and vegetables is discussed. Some contradictions found in the literature are pointed out and some questions that have not been given the necessary attention by researchers so far are mentioned.

Related  
Resources

Publication Types:

- Review

PMID: 6794984 [PubMed - indexed for MEDLINE]

Display	Abstract	▼	Show: 20	▼	Sort	▼	Send to	Text	▼
---------	----------	---	----------	---	------	---	---------	------	---

[Write to the Help Desk](#)  
[NCBI](#) | [NLM](#) | [NIH](#)  
[Department of Health & Human Services](#)  
[Freedom of Information Act](#) | [Disclaimer](#)

Jun 5 2003 10:08:34

## **Partial purification and some properties of polyphenol oxidase extracted from litchi fruit pericarp**

Jiang, Y-M., Zauberman, G., Fuchs, Y. (1997)

*Postharvest Biology and Technology* 10:221-228

Litchi (*Litchi chinensis* Sonn.) fruit peel polyphenol oxidase (PPO) was partially purified 21 fold by ammonium sulfate fractionation and gel filtration. Pyrogallol, catechol and 4-methylcatechol were good substrates for the enzyme; with no activity observed with chlorogenic acid, p-cresol, resorcinol, or tyrosine. The optimal pH for PPO activity was 7.0 with 4-methylcatechol, with the enzyme being most stable at pH 7.4. The enzyme was relatively temperature stable with maximum activity at 70°C and requiring a little less than 10 min at 90°C for 50% loss of activity. The  $K_m$  and  $V_{max}$  for the enzyme, with 4-methylcatechol, were 10 mM and  $1.47 \times 10^4$  units/min per mg protein respectively. The enzyme was not activated by SDS. Reduced glutathione, L-cystein, tropolone, thiourea,  $FeSO_4$ , and  $SnCl_2$  markedly inhibited PPO activity, whereas  $MnSO_4$  and  $CaCl_2$  enhanced PPO activity. Data obtained in this study might help to better understand and control commercially, litchi peel browning.

---

[ARO Home Page](#)

This record is from the Current Research Information System (CRIS) database. For the most current version of the record, please retrieve it from the CRIS database at <http://cristel.nal.usda.gov:8080>

---

ACCESSION NO: 9156840

PROJ NO: NYC-149374 AGENCY: CRGO NY.C

PROJ TYPE: CRGO

START: 01 SEP 91 TERM: 31 AUG 95 FY: 1995 GRANT YR: 1993

INVESTIGATOR: Tingey, W. M.; Tingey, W. M.

**PERFORMING INSTITUTION:**

PLANT BREEDING

CORNELL UNIVERSITY

ITHACA, NEW YORK 14853

***FUNCTION AND EXPRESSION OF POLYPHENOL OXIDASE***

CONTRACT/GRANT/AGREEMENT NO: 91-37301-6571

GRANT YEAR: 1993

**OBJECTIVES:** PROJ. #9101665. Polyphenol oxidases (PPO) are copper metalloproteins which catalyze the oxidation of phenols to quinones at the expense of O(2). The PPO-generated quinones are highly reactive, electrophilic molecules which covalently modify and crosslink a variety of cellular constituents including nucleophiles of proteins such as sulfhydryl, amine, amide, indole and imidazole substituents. A 59 kD PPOI in glandular trichomes on the leaf surface of wild tomato and potato species appears to be responsible for polymerization of glandular trichome exudate which results in insect entrapment. This PPO is the dominant protein and oxidative enzyme of these organs (ca. 4-80% of total trichome protein).

**APPROACH:** This proposal seeks to address the expression of 59 kD PPO by identifying cis-regulatory sequences controlling the high-level, epidermis and glandular trichome-specific expression of 59 kD PPO. The DNA encoding the tomato 59 kD trichome polyphenol oxidase gene will be isolated. A series of gene constructs utilizing pBI121 and 5' noncoding regions of the trichome PPO gene will be made to place Beta-glucuronidase under the control of sequences specifying the high-level, epidermal expressions of this gene. Identification of regulatory sequences for the 59 kD PPO may make possible the utilization of glandular trichomes for delivery of bioactive natural products to the leaf surface of crop plants.

**PROGRESS: 9501 TO 9512**

Polyphenol oxidases convert phenolic substrates to ortho-quinones whose secondary reactions are responsible for much of the oxidative browning evident in fruits and vegetables. However, an in planta function for PPOs has not been determined despite their wide distribution. Roles in plant defense, phenylpropanoid biosynthesis, plastidic oxygen regulation and electron transport have been hypothesized. To gain insight into PPO function(s), we introduced a chimeric antisense PPO cDNA into tomato. Oxidation of caffeic acid, the dominant o-diphenol of tomato foliage, was decreased 39-fold by antisense expression of PPO in transgenic tomato. Immuno-reactive PPO and PPO-specific mRNA and immunoreactive PPO were not detectable in the transgenic plants. Growth and development were phenotypically normal under greenhouse conditions. However, epidermal leucoplasts displayed an abnormal morphology in antisense plants. PPO-containing protein bodies conspicuous in nontransformed plants were absent or reduced in antisense PPO plants and plastids did not label with antibodies directed

against PPO. However, insect herbivore performance is significantly improved on transgenic tomatoes possessing antisense PPO constructs, indicating that PPO may play a role in plant defense against herbivores.

**PUBLICATIONS: 9501 TO 9512**

Thipyapong, P., Hunt, M.D., and J.C. Steffens (1995). Systemic wound induction of polyphenol oxidase in potato. *Phytochemistry* 40:673-676. Hunt, M.D. (1995). Cloning, expression, and functional analysis of polyphenoloxidases. PhD Thesis, Cornell University, 213 pp.

**SUBFILE: CRIS**



# Asparaginase

Scott Hamilton

## Function of the Enzyme

## Protein Characteristics

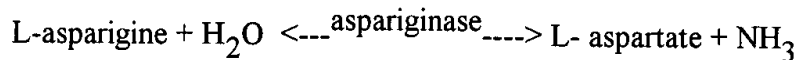
## Protein Structure

## Current Research

## References

## Function of the Enzyme

The general function of the enzyme *Asparaginase* is to catalyse the reaction of



The EC number of this particular enzyme is **3.5.1.1 Asparaginase (1)**

## Protein Characteristics

The enzyme belongs to the protein family: nitrilase, it has a molecular weight of 38,895 Daltons. The amino acid sequence is **tggt. (2)**

## Protein Structure



(3)

## Current Research

The asparaginase is classified as an alpha-beta sandwich. The topology is that of a hydrolase. **(3)(4)(5)**

generated by the computer generated images. It is classified as a three-layer alpha-beta-alpha. The homologous superfamily is classified as

**Insight into the treatment of childhood**

**induced depletion of antithrombin III in**

Asparaginase is used for the treatment of childhood acute lymphoblastic leukemia (ALL). It appears to work by cleaving asparagine to give aspartic acid and ammonia and thus depleting free asparagine in the blood. Evidence suggests, however, that it can cause a predisposition to thromboembolic problems by significantly decreasing serpin and antithrombin III plasma levels. Human plasma and whole blood showed no loss of antithrombin III activity when treated with therapeutic levels of asparaginase. **(6)**

**The L-Asparagine operon of *Rhizobium etli* contains a gene encoding an atypical asparaginase.**

Sequence analysis for the L-asparagine operon of *Rhizobium etli* was cloned and sequenced. The analysis demonstrated four adjacent open reading frames (ansR, ansP, ansA, and ansB) which coded for a transcriptional repressor, a permease, a thermolabile asparaginase, and an aspartase, respectively. The product of the *R. etli* ansA gene showed a different sequence than previously reported microbial asparaginases, which suggests that it is an atypical asparaginase that may have come from another source other than bacteria or yeast asparaginases. **(7)**

***Pegylated asparaginase (Oncaspar) in children with ALL.***

Children who would have normally have been treated with native *E. coli* asparaginase in induction therapy were switched according to protocol were switched or started on pegylated asparaginase and monitored closely because of observed adverse side-effects of the native asparaginase. Toxicity was low in comparison with the native enzymes, and no allergic reactions were seen. (8)

**References** (obtained Feb. 2001)

- 1) <http://www.expasy.ch/cgi-bin/niceprot.pl?P46011>. NiceProt View of SWISS-PROT: P46011
- 2) [http://srs.ebi.ac.uk/srsbin/cgi-bin/wgetz?-e+\[BRENDA-ECNumber:'3551'\]](http://srs.ebi.ac.uk/srsbin/cgi-bin/wgetz?-e+[BRENDA-ECNumber:'3551'])
- 3) Protein Data Bank, <http://www.rcsb.org/pdb/index.html>, Structure Explorer <http://www.rcsb.org/pdb/cgi/explore.cgi?job=graphics&pdbId=1AGX&page=&pid=123889832>
- 4) CATH ( Classification, Architecture, Topology, and Homologous Superfamily of Proteins), [http://www.biochem.ucl.ac.uk/bsm/cath\\_new/index.html](http://www.biochem.ucl.ac.uk/bsm/cath_new/index.html), [http://www.biochem.ucl.ac.uk/bsm/cath\\_new/class3/40/50/40/index.html](http://www.biochem.ucl.ac.uk/bsm/cath_new/class3/40/50/40/index.html)
- 5) <http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?CMD=Text&DB=PubMed>
- 6) Insight into the mechanism of... <http://www.ncbi.nlm.nih.gov/PubMed/>. Authors: Bushman, JE, Palmieri, D, Whinna, HC, Church, FC. , Department of Chemistry, University of North Carolina at Chapel Hill, USA. Information obtained February 2001.
- 7) The L-asparagine operon.... <http://www.ncbi.nlm.nih.gov/PubMed/> Authors: Ortuno, OL, Duran-Vargas, S, Department of Biotechnology, University of Mexico, Mexico. Information obtained February 2001
- 8) Pegylated asparaginase(Oncaspor) in ... Journal of Haematol, Aug. 2000, pg 379-84. <http://www.ncbi.nlm.nih.gov/PubMed/> , Authors: Mueller HJ, et al. , University of Munster, Germany. Information obtained Feb. 2001

# Polyphenol Oxidase

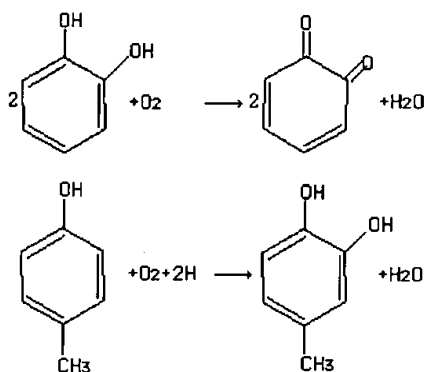
[WBC Home](#)
[Manual/Protocol Index](#)
[Catalog Index](#)
[Manual Page](#) | [Catalog Page](#)

I.U.B.: 1.14.18.1

Tyrosinase

monophenol, dihydroxyphenylalanine: O<sub>2</sub> oxidoreductase

Polyphenol oxidase (tyrosinase) (TY) is a bifunctional, copper-containing oxidase having both catecholase and cresolase activity (Malmström and Rydén 1968):



Jolley *et al.* (1974) refer to it as an oxygen and 4 electron-transferring phenol oxidase. It is responsible for browning reactions throughout the phylogenetic scale.

Although a tyrosinase from *Neurospora crassa* has been purified (Fling *et al.* 1963), most work has been done with the mushroom enzyme, even though yields and consistency are poor; its multiplicity was shown by Smith and Krueger (1962). Bouchilloux *et al.* (1963) obtained four enzymes. See review by Nelson and Mason (1970).

## Characteristics of Polyphenol Oxidase from Mushroom:

**Molecular weight:** 128,000 (Duckworth and Coleman 1970).

**Composition:** The enzyme is a tetramer containing four gram atoms of copper per molecule (Jolley *et al.* 1974), and two binding sites for aromatic compounds including phenolic substrates. There is also a distinctly different binding site for oxygen, the copper site (Duckworth and Coleman 1970). The copper is probably in the cuprous state; inactivation of the enzyme is associated with increase in Cu<sup>2+</sup>. (Kertész *et al.* 1972). The amino acid composition has been determined. Extensive structural studies have been reported by Jolley *et al.* (1969); and Duckworth and Coleman (1970). See also Jolley *et al.* (1972, 1973, and 1974).

**Optimum pH:** 6.0-7.0.

**Extinction coefficient:** E<sub>280</sub><sup>1%</sup> = 24.9 (immediately after purification) (Duckworth and Coleman 1970).

**Inhibitors:** Compounds that complex with copper. The enzyme is also inhibited competitively by benzoic acid with respect to catechol and by cyanide with respect to oxygen (Duckworth and Coleman 1970).

**Activity:** Polyphenol oxidase is an oxygen transferring enzyme. Besides using O<sub>2</sub> to catalyze the dehydrogenation of catechols to orthoquinones and the orthohydroxylation of phenols to catechols, a peroxidase activity has been reported on by Strothkamp and Mason (1974). Kinetic studies have been reported by Kertész *et al.* (1971). See also the review by Malmström and Rydén.

**Specificity:** A large number of parasubstituted catechols are oxidized (Duckworth and Coleman 1970).

**Stability:** The lyophilized preparation is stable for 6-12 months when stored at 5°C.

## Assay

**Method:** Polyphenol oxidase oxidizes tyrosine to dihydroxyphenylalanine which in turn is oxidized to o-quinone. The latter is accompanied by an increase in absorbance at 280 nm. The rate of increase is proportional to enzyme concentration and linear during a period of 5-10 minutes after an initial lag. One unit causes a change in absorbance at 280 nm of 0.001 per minute at 25°C, pH 6.5 under the specified conditions.

### Reagents

- 0.5 M Potassium phosphate buffer, pH 6.5
- 0.001 M L-Tyrosine

### Enzyme

Dissolve at a concentration of 1 mg/ml in reagent grade water. Dilute further in reagent grade water to a concentration of 200-400 units/ml.

### Procedure

Adjust the spectrophotometer to 280 nm and 25°C. Pipette into each cuvette as follows:

0.5 M Phosphate buffer, pH 6.5	1.0 ml
0.001 M L-Tyrosine	1.0 ml
Reagent grade water	0.9 ml

Oxygenate this reaction mixture by bubbling oxygen into cuvettes through a capillary tube for 4-5 minutes. Transfer cuvettes to the spectrophotometer and record A<sub>280</sub> for 4-5 minutes to achieve temperature equilibration and to establish blank rate, if any. Add 0.1 ml of appropriately diluted enzyme and record A<sub>280</sub> for 10-12 minutes. Determine  $\Delta A_{280}$  from the linear portion of the curve. A non-linear "lag" of 2-3 minutes can be expected.

### Calculation

$$\text{Units/mg} = \frac{\Delta A_{280}/\text{min} \times 1000}{\text{mg enzyme in reaction}}$$

---

## References

- Adachi, K., and Halprin, K.: A Sensitive Fluorometric Assay Method for Mammalian Tyrosinase, *Biochem Biophys Res Commun* 26, 241, 1967
- Ashida, M., and Ohnishi, E.: Activation of Pre-Phenol Oxidase in Hemolymph of the Silkworm, *Arch Biochem Biophys* 122, 411, 1967
- Baldwin, M., Ross, P., Pate, J., Tyeklar, Z., Karlin, K., and Solomon, E.: Spectroscopic and Theoretical Studies of an End-on Peroxide-Bridged Coupled Binuclear Copper(II) Model Complex of Relevance to the Active Sites in Hemocyanin and Tyrosinase, *J Am Chem Soc* 113, 8671, 1991
- Barthe, J., and Gadai, P.: Mise en Evidence par Focalisation Isoelectrique de Trois Isoenzymes de la Polyphenoloxydase Chez *Quercus pendunculata* Ehrh., *FEBS Lett* 21, 233, 1972
- Boissy, R., Moellmann, G., and Halaban, R.: Tyrosinase and Acid Phosphatase Activities in Melanocytes from Avian Albinos, *J Invest Dermatol* 88, 292, 1987
- Bouchillous, S., McMahon, P., and Mason, H.: The Multiple Forms of Mushroom Tyrosinase. Purification and Molecular Properties of the Enzymes, *J Biol Chem* 238, 1699, 1963
- Bull, A., and Carter, B.: The Isolation of Tyrosinase from *Aspergillus nidulans*. Its Kinetic and Molecular Properties and Some Consideration of Its Activity *in vivo*, *J Gen Microbiol* 75, 61, 1973
- Burnett, J.: The Tyrosinase of Mouse Melanoma. Isolation and Molecular Properties, *J Biol Chem* 246, 3079, 1971
- Cabanes, J., García-Cánovas, F., Tudela, J., Lozano, J., and García-Carmona, F.: L-Mimosine, a Slow-binding Inhibitor of Mushroom Tyrosinase, *Phytochem* 26, 917, 1987
- Chen, J., Wei, C., and Marshall, M.: Inhibition Mechanism of Kojic Acid on Polyphenol Oxidase, *J Agric Food Chem* 39, 1897, 1991
- Chen, Y., and Chavin, W.: Incorporation of Carboxyl Groups into Melanin by Skin Tyrosinase, *Nature* 210, 35, 1966
- Cicero, R., Gallone, A., Maida, I., and Pintucci, G.: Effects of Copper on the Tyrosinase of Liver Pigment Cells from *Rana esculenta* L., *Comp Biochem Physiol A* 96, 393, 1990
- Conrad, J., Dawso, S., Hubbard, E., Meyers, T., and Strothkamp, K.: Inhibitor Binding to the Binuclear Active Site of Tyrosinase: Temperature, pH, and Solvent Deuterium Isotope Effects, *Biochemistry* 33, 5739, 1994
- Cory, J., and Frieden, E.: Differential Reactivities of Tyrosine Residues of Proteins to Tyrosinase, *Biochem* 6, 121, 1967
- Cory, J., and Frieden, E.: Faster Oxidation of Tyrosine-26 of Oxidized B Chain of Insulin by Tyrosinase,

*Biochem* 6, 116, 1967

Dabbous, M.: Inter- and Intramolecular Cross-Linking in Tyrosinase-Treated Tropocollagen, *J Biol Chem* 241, 5307, 1966

Demopoulos, H., Gerving, M., and Bagdoyan, H.: Selective Inhibition of Growth and Respiration of Melanomas by Tyrosinase Inhibitors, *J Natl Cancer Inst* 35, 823, 1965

Devi, C., Tripathi, R., and Ramaiah, A.: pH-Dependent Interconvertible Allosteric Forms of Murine Melanoma Tyrosinase - Physiological Implications, *Eur J Biochem* 166, 705, 1987

Duckworth, H., and Coleman, J.: Physicochemical and Kinetic Properties of Mushroom Tyrosinase, *J Biol Chem* 245, 1613, 1970

Eisenstein, O., Giessnerpretre, C., Maddaluno, J., Stussi, D., and Weber, J.: Theoretical Study of Oxyhemocyanin Active Site - A Possible Insight on the 1st Step of Phenol Oxidation by Tyrosinase, *Arch Biochem Biophys* 296, 247, 1992

Escribano, J., García-Cánovas, F., García-Carmona, F., Varon, R., Tudela, J., and Lozano, J.: Kinetic Study of the Transient Phase of a Chemical Reaction System Coupled to an Enzymatically Catalyzed Step. Application to the Oxidation of Epinine by Tyrosinase, *Biophys Chem* 27, 15, 1987

Fling, M., Horowitz, N., and Heinemann, S.: The Isolation and Properties of Crystalline Tyrosinase from *Neurospora*, *J Biol Chem* 238, 2045, 1963

García-Canovas, F., Tudela, J., Martínez, C., Varon, R., García-Carmona, F., and Lorenzo, J.: Kinetic Study on the Suicide Inactivation of Tyrosinase Induced by Catechol, *Biochim Biophys Acta* 912, 417, 1987

García-Carmona, F., Cabanes, J., and García-Canovas, F.: Kinetic Study of Sinephrine Oxidation by Mushroom Tyrosinase, *Biochem Int* 14, 1003, 1987

Gregory, R., and Bendall, D.: The Purification and Some Properties of the Polyphenol Oxidase from Tea *Camellia sinensis*, *Biochem J* 101, 569, 1966

Gutteridge, S., and Robb, D.: Purification of Mushroom Tyrosinase by Affinity Chromatography, *Biochem Soc Trans* 1, 519, 1973

Gutteridge, S., and Robb, D.: The Catecholase Activity of *Neurospora* Tyrosinase, *Eur J Biochem* 54, 107, 1975

Hall, P., and Okazaki, K.: The Action of Interstitial Cell Stimulating Hormone Upon Avian Tyrosinase, *Biochem* 5, 1202, 1966

Harrison, W., and Whisler, W.: Detection and Study of a Cyclization Step Preceding the Formation of Fluorescent Product in Tyrosinase-Catalyzed Adrenaline Oxidation, *Arch Biochem Biophys* 114, 108, 1966

Harrison, W., Whisler, W., and Ko, S.: Detection and Study by Fluorescence Spectrometry of Stereospecificity in Mushroom Tyrosinase-Catalyzed Oxidations. Proposal of Copper-Containing

- Reaction Rate Control Site, *J Biol Chem* 242, 1660, 1967
- Hider, R., Lerch, K., Crompton, I., and Waley, S.: The Inhibition of Tyrosinase by Pyridones, *Biochem J* 257, 289, 1989
- Holstein, T., Burnett, J., and Quevedo, W.: Genetic Regulation of Multiple Forms of Tyrosinase in Mice: Action of alpha and beta Loci, *Proc Soc Exp Biol Med* 126, 415, 1967
- Huber, M., Hinterman, G., and Lerch, K.: Primary Structure of Tyrosinase from *Streptomyces glaucenscens*, *Biochem* 24, 6038, 1985
- Hyodo, H., and Uritani, I.: Properties of Polyphenol Oxidases Produced in Sweet Potato Tissue after Wounding, *Arch Biochem Biophys* 122, 299, 1967
- Hyodo, H., and Uritani, I.: Purification and Properties of o-Diphenol Oxidases in Sweet Potato, *J Biochem (Tokyo)* 58, 388, 1965
- Jacobsohn, G., and Jacobsohn, M.: The Catalytic Effect of Tyrosinase upon the Oxidation of 2-Hydroxyestradiol in Presence of Catechol, *Arch Biochem Biophys* 232, 189, 1984
- Jimenezatienzar, M., Pedreno, M., and Garcíacarmona, F.: Activation of Polyphenol Oxidase by Polyamines, *Biochem Int* 25, 861, 1991
- Jimenez, M., García-Carmona, F., García-Canovas, F., Iborra, J., Lozano, J., and Martinez, F.: Chemical Intermediates in Dopamine Oxidation by Tyrosine and Kinetic Studies of the Process, *Arch Biochem Biophys* 235, 433, 1984
- John, V., and Ragetli, H.: Assay of Plant Tyrosinase by Agar-Gel Double Diffusion and Electro-Osmophoresis, *Biochem J* 101, 21c, 1966
- Jolley, R., and Mason, H.: The Multiple Forms of Mushroom Tyrosinase. Interconversion, *J Biol Chem* 240, PC1489, 1965
- Jolley, R., Evans, L., and Mason, H.: A Reaction Between Tyrosinase and H<sub>2</sub>O<sub>2</sub>, *Oxidases and Related Redox Systems 1*, T. King, H. Mason, and M. Morrison, Univ Pk Press, Baltimore, MD USA, 100, 1973
- Jolley, R., Evans, L., and Mason, H.: Reversible Oxygenation of Tyrosinase, *Biochem Biophys Res Commun* 46, 878, 1972
- Jolley, R., Evans, L., Makino, N., and Mason, H.: Oxytyrosinase, *J Biol Chem* 249, 335, 1974
- Jolley, R., Nelson, R., and Robb, D.: The Multiple Forms of Mushroom Tyrosinase. Structural Studies on the Isozymes, *J Biol Chem* 244, 3251, 1969
- Jolley, R., Robb, D., and Mason, H.: The Multiple Forms of Mushroom Tyrosinase. Association-Dissociation Phenomena, *J Biol Chem* 244, 1593, 1969
- Kahn, V., and Miller, R.: Tiron as a Substrate for Mushroom Tyrosinase, *Phytochem* 26, 2459, 1987
- Kertész, D., and Zito, R.: Mushroom Polyphenol Oxidase. I. Purification and General Properties,

*Biochim Biophys Acta* 96, 447, 1965

Kertész, D., and Zito, R.: Polyphenoloxidase ('Tyrosinase'): Purification and Molecular Properties, *Nature* 179, 1017, 1957

Kertész, D., Brunori, M., Zito, R., and Antonini, E.: Transient Kinetic Studies of DOPA Oxidation by Polyphenoloxidase, *Biochim Biophys Acta* 250, 306, 1971

Kertész, D., Rotilio, G., Brunori, M., Zito, R., and Antonini, E.: Kinetics of Reconstitution of Polyphenoloxidase from Apoenzyme and Copper, *Biochem Biophys Res Commun* 49, 1208, 1972

Keyes, M., and Semersky, F.: A Quantitative Method for the Determination of the Activities of Mushroom Tyrosinase, *Arch Biochem Biophys* 148, 256, 1972

Korytowski, W., Sarna, T., Kalyanaraman, B., and Sealy, R.: Tyrosinase-Catalyzed Oxidation of Dopa and Related Catechol(amine)s: A Kinetic Electron Spin Resonance Investigation Using Spin-Stabilization and Spin Oximetry, *Biochim Biophys Acta* 906, 383, 1987

Kumar, A., and Christian, G.: Assay of L-Tyrosine in Serum by Amperometric Measurement of Tyrosinase-Catalysed Oxygen Consumption, *Clin Chem* 21, 325, 1975

Kumar, M., and Flurkey, W.: Activity, Isoenzymes and Purity of Mushroom Tyrosinase in Commercial Preparations, *Phytochem* 30, 3899, 1991

Laskin, J., and Piccinini, L.: Tyrosinase Isozyme Heterogeneity in Differentiating B16/C3 Melanoma, *J Biol Chem* 261, 16626, 1986

Lejczak, B., Kafarski, P., and Makowiecka, E.: Phosphonic Analogues of Tyrosine and 3,4-Dihydroxyphenylalanine (dopa) Influence Tyrosinase Activity, *Biochem J* 242, 81, 1987

Lerch, K., Longoni, C., and Jordi, E.: Primary Structure of Tyrosinase from *Neurospora crassa*. I. Purification and Amino Acid Sequence of the Cyanogen Bromide Fragments, *J Biol Chem* 257, 6408, 1982

Lerch, K.: Primary Structure of Tyrosinase from *Neurospora crassa*. II. Complete Amino Acid Sequence and Chemical Structure of a Tripeptide Containing an Unusual Thioether, *J Biol Chem* 257, 6414, 1982

Lim, M., and Patil, D.: Mushroom Tyrosinase as an Oxidant for the Synthesis of 5,6-dihydroxyindole Derivatives, *Tetrahedron Lett* 28, 3775, 1987

Lloyd, T., Garry, F., Manders, E., and Marks, J.: The Effect of Age and Hair Colour on Human Hairbulb Tyrosinase Activity, *Brit J Dermatol* 116, 485, 1987

Long, T., Och, F., and Alben, J.: Spectrophotometric Determination of Monophenolase Activity of Tyrosinase Isozymes, *Arch Biochem Biophys* 146, 64, 1971

Maddaluno, J., and Faull, K.: Inhibition of Mushroom Tyrosinase by 3-Amino-L-Tyrosine - Molecular Probing of the Active Site, *Experientia* 44, 882, 1988

Madhosingh, C., and Sundberg, L.: Purification and Properties of Tyrosinase Inhibitor from Mushroom,



FEBS Lett 49, 156, 1974

Mallette, M., and Dawson, C.: , *J Am Chem Soc* 69, 466, 1947

Malmström, B., and Rydén, L.: , *Biological Oxidations*, T. Singer, Interscience Publ., NY, 419, 1968

Mason, H.: Mechanism of Oxygen Metabolism, *Adv Enzymol Relat Areas Mol Biol* 19, 79, 1957

Mikkelsen, R., and Triplett, E.: Tyrosinases in *Rana pipiens*. Purification and Physical Properties, *J Biol Chem* 250, 638, 1975

Mikkelsen, R., Tang, D., and Triplett, E.: Photo-Chemical Activation of *Rana pipiens* Tyrosinase, *Biochem Biophys Res Commun* 40, 1084, 1970

Miranda, M., Bonfigli, A., Zarivi, O., Ragnelli, A., Pacioni, G., and Botti, D.: Truffle Tyrosinase - Properties and Activity, *Plant Sci.* 81, 175, 1992

Miranda, M., Di Ilio, C., Bonfigli, A., Arcadi, A., Pitari, G., Dupre, S., Federici, G., and Del Boccio, G.: A Study on the, *Biochim Biophys Acta* 913, 386, 1987

Moore, B., and Flurkey, W.: Sodium Dodecyl Sulfate Activation of a Plant Polyphenoloxidase. Effect of Sodium Dodecyl Sulfate on Enzymatic and Physical Characteristics of Purified Broad Bean Polyphenoloxidase, *J Biol Chem* 265, 4982, 1990

Mufson, R.: The Tyrosinase Activity of Melanosomes from the Harding-Passey Melanoma: The Absence of a Peroxidase-Component *In vitro*, *Arch Biochem Biophys* 167, 738, 1975

Naishbyfield, S., and Riley, P.: Oxidation of Monohydric Phenol Substrates by Tyrosinase - An Oximetric Study, *Biochem J* 288, 63, 1992

Nilges, M., Swartz, H., and Riley, P.: Identification by Electron Spin Resonance of Free Radicals Formed during the Oxidation of 4-Hydroxyanisole Catalyzed by Tyrosinase, *J Biol Chem* 259, 2446, 1984

Obika, M., and Negishi, S.: Properties and State of Particulate Tyrosinase of Xanthic Goldfish, *Biochim Biophys Acta* 212, 369, 1970

Oshkura, T., Yamashita, K., Mishima, Y., and Kobata, A.: Purification of Hamster Melanoma Tyrosinases and Structural Studies of Their Asparagine-Linked Sugar Chains, *Arch Biochem Biophys* 235, 63, 1984

Palmer, J., and Roberts, J.: Inhibition of Banana Polyphenoloxidase by 2-Mercaptobensothiazole, *Science* 157, 200, 1967

Pifferi, P., and Baldassari, L.: A Spectrophotometric Method for the Determination of the Catecholase Activity of Tyrosinase by Besthorn's Hydrazone, *Anal Biochem* 52, 325, 1973

Pomerantz, S., and Murthy, V.: Purification and Properties of Tyrosinases from *Vibrio tyrosinaticus*, *Arch Biochem Biophys* 160, 73, 1974

Pomerantz, S., and Warner, M.: Identification of 3,4-Dihydrophenylalanine as Tyrosinase Cofactor in

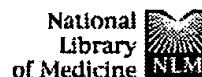
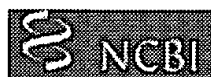
- Melanoma, *Biochem Biophys Res Commun* 24, 25, 1966
- Pomerantz, S.: Tyrosine Hydroxylation Catalyzed by Mammalian Tyrosinase: An Improved Method of Assay, *Biochem Biophys Res Commun* 16, , 1964
- Quevedo, W., Holstein, J., and Bienieki, T.: Action of Trypsin and Detergents on Tyrosinase of Normal and Malignant Melanocytes, *Proc Soc Exp Biol Med* 150, 735, 1975
- Rüegg, C., Ammer, D., and Lerch, K.: Comparison of Amino Acid Sequence and Thermostability of Tyrosinase from Three Wild Type Strains of *Neurospora crassa*, *J Bacteriol* 257, 6420, 1982
- Rajan, J., and Virkar, P.: Induced Pelletized Growth of *Neurospora crassa* for Tyrosinase Biosynthesis in Airlift Fermentors, *Biotechnol Bioeng* 29, 770, 1987
- Rivas, G., and Solis, V.: Electrochemical Determination of the Kinetic Parameters of Mushroom Tyrosinase, *Bioelectrochem Bioenergetics* 29, 19, 1992
- Sanchez-Ferrer, A., Rodriguez-Lopez, J., Garcia-Canovas, F., and Garcia-Carmona, F.: Tyrosinase: A Comprehensive Review of its Mechanism, *Biochim Biophys Acta* 1247, 1, 1995
- Smith, J., and Krueger, R.: Separation of the Phenolases of the Common Mushroom, *J Biol Chem* 237, 1121, 1962
- Somkuti, G., Solaiman, D., and Steinberg, D.: Cloning of a Tyrosinase Gene in *Streptococcus thermophilus*, *Biotechnol Lett* 15, 773, 1993
- Spira-Solomon, D., and Solomon, E.: Chemical and Spectroscopic Studies of the Coupled Binuclear Copper Site in Type 2 Depleted *Rhus Laccase*: Comparison of the Hemocyanins and Tyrosinase, *J Am Chem Soc* 109, 6421, 1987
- Strothkamp, K., and Mason, H.: Pseudoperoxidase Activity of Mushroom Tyrosinase, *Biochem Biophys Res Commun* 61, 827, 1974
- Takahashi, H., and Parsons, P.: Rapid and Reversible Inhibition of Tyrosinase Activity by Glucosidase Inhibitors in Human Melanoma Cells, *J Invest Dermatol* 98, 481, 1992
- Townsend, D., Guillery, P., and King, R.: Optimized Assay for Mammalian Tyrosinase (Polyphenol Phenyloxidase), *Anal Biochem* 139, 345, 1984
- Urey, J., and Horowitz, N.: Effects of EDTA on Tyrosinase and L-Amino-Acid Oxidase Induction in *Neurospora crassa*, *Biochim Biophys Acta* 132, 300, 1967
- Vachtenheim, J., Duchon, J., and Matous, B.: A Spectrophotometric Assay for Mammalian Tyrosinase Utilizing the Formation of Melanochrome from L-Dopa, *Anal Biochem* 146, 405, 1985
- Wilgram, G.: Tyrosinase Inhibition: Its Role in Suntanning and in Albinism, *Science* 155, 198, 1967
- Wood, B., and Ingraham, L.: Labelled Tyrosinase from Labelled Substrate, *Nature* 205, 291, 1965
- Yagi, A., Kanbara, T., and Morinobu, N.: Inhibition of Mushroom-Tyrosinase by Aloe Extract, *Planta*

*Med* 6, 515, 1987

Yamaguchi, M., Hwang, P., and Campbell, J.: Latent o-Diphenol Oxidase in Mushrooms (*Agaricus bisporus*), *Can J Biochem* 48, 198, 1960

Yurkow, E., and Laskin, J.: Purification of Tyrosinase To Homogeneity Based on Its Resistance to Sodium Dodecyl Sulfate-Proteinase K Digestion, *Arch Biochem Biophys* 275, 122, 1989

Zachariah, K., and Mottola, H.: Continuous-Flow Determination of Phenol with Chemically Immobilized Polyphenol Oxidase (Tyrosinase), *Anal Letters* 22, 1145, 1989



PubMed	Nucleotide	Protein	Genome	Structure	PMC	Taxonomy	OMIM	Books
Search PubMed	<input type="checkbox"/> for						Go	Clear
Limits		Preview/Index		History		Clipboard		Details

Display	Abstract	<input type="checkbox"/>	Show: 20	<input type="checkbox"/>	Sort	<input type="checkbox"/>	Send to	Text	<input type="checkbox"/>
---------	----------	--------------------------	----------	--------------------------	------	--------------------------	---------	------	--------------------------

☐ 1: Bull Exp Biol Med. 2002 Jan;133(1):58-61.

[Related Articles, Links](#)

Entrez PubMed

## Effects of asparaginase and polyphenol oxidase on adhesive characteristics of microorganisms.

Kolganova TV, Ermolaev AV, Doyle RJ.

PubMed  
Services

Department of Microbiology, Russian University of Peoples' Friendship, Moscow.

We studied the effects of polyphenol oxidase and asparaginase on microorganism adhesion to buccal epithelial cells. These enzymes reduced adhesion of pathogenic microorganisms (uropathogenic and Escherichia coli, Salmonella enteritidis, Entamoeba spp., Influenza virus, Candida albicans, Streptococcus spp.) and had virtually no effect on adhesive characteristics of probiotic variants of Escherichia coli and Lactobacillus fermentum.

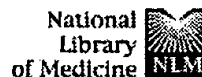
PMID: 12170308 [PubMed - indexed for MEDLINE]

Related  
Resources

Display	Abstract	<input type="checkbox"/>	Show: 20	<input type="checkbox"/>	Sort	<input type="checkbox"/>	Send to	Text	<input type="checkbox"/>
---------	----------	--------------------------	----------	--------------------------	------	--------------------------	---------	------	--------------------------

[Write to the Help Desk](#)  
[NCBI](#) | [NLM](#) | [NIH](#)  
[Department of Health & Human Services](#)  
[Freedom of Information Act](#) | [Disclaimer](#)

Jun 5 2003 10:08:34



PubMed	Nucleotide	Protein	Genome	Structure	PMC	Taxonomy	OMIM	Books	
Search	PubMed	▼	for					Go	Clear
Limits		Preview/Index		History		Clipboard		Details	

Display	Abstract	▼	Show	20	▼	Sort	▼	Send to	Text	▼
---------	----------	---	------	----	---	------	---	---------	------	---

☐ 1: Biomater Artif Cells Artif Organs. 1988-89;16(5):915-26. Related Articles, Links

Entrez PubMed

**Plasma/intestinal concentration patterns suggestive of entero-portal recirculation of amino acids: effects of oral administration of asparaginase, glutaminase and tyrosinase immobilized by microencapsulation in artificial cells.**

PubMed  
Services

**Chang TM, Lister C.**

Artificial Cells and Organs Research Centre, Faculty of Medicine, McGill University, Montreal, P.Q., Canada.

Related  
Resources

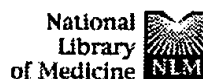
This study suggests the presence of an entero-portal recirculation of amino acids. Endogenous sources of amino acids are secreted at high concentration into the small intestine. Most of the amino acids are absorbed as the content passes down the small intestine. Plasma amino acid concentrations are on the average only 1-5% of the concentrations in the duodenum. This is true even in rats on 24 hours of water and sugar with no exogenous sources of amino acids. For example, the PLASMA:DUODENUM concentrations (mmole/litre) are: Asparagine 37:7164, Tyrosine 94:9579, and glutamine/histidine 409:9708. This entero-portal recirculation of amino acids means the potential of a method for specific depletion of body amino acids by oral ingestion of bioreactants like immobilized enzymes. Preliminary studies used artificial cells to immobilize asparaginase, glutaminase and tyrosinase by microencapsulation. Six hours after 1 oral administration, asparagine, glutamine and tyrosine in the ileum were lowered to 10% of the level of the control. Artificial cells containing no enzymes were used as the control.

PMID: 3150943 [PubMed - indexed for MEDLINE]

Display	Abstract	▼	Show	20	▼	Sort	▼	Send to	Text	▼
---------	----------	---	------	----	---	------	---	---------	------	---

Write to the Help Desk  
NCBI | NLM | NIH  
Department of Health & Human Services  
Freedom of Information Act | Disclaimer

Jun 5 2003 10:08:34



PubMed	Nucleotide	Protein	Genome	Structure	PMC	Taxonomy	OMIM	Books
Search PubMed	▼ for						Go	Clear
Limits		Preview/Index		History		Clipboard		Details

Display	Abstract	▼	Show: 20	▼	Sort	▼	Send to	Text	▼
---------	----------	---	----------	---	------	---	---------	------	---

☐ 1: Clin Exp Immunol. 1990 Dec;82(3):469-72.

[Related Articles, Links](#)

Entrez PubMed

## Modulation of lymphocyte proliferation by enzymes that degrade amino acids.

Chuang JC, Yu CL, Wang SR.

PubMed  
Services

Department of Medicine, Veterans General Hospital, Taipei, Taiwan, Republic of China.

Related  
Resources

In a previous study we demonstrated thirteen amino acids to be essential and two to be partially essential for lymphocyte proliferation. Arginine is one of the essential amino acids, and the highly purified arginase strongly inhibited lymphocyte proliferation. The modulation of lymphocyte growth by various amino acid-degrading enzymes was studied. Peripheral lymphocytes were cultured in RPMI 1640 with or without amino acid-degrading enzyme for 72 h. A total of 17 commercial L-amino acid-degrading enzymes were studied. At 10 micrograms/ml, both lysine decarboxylase and asparaginase completely inhibited lymphocyte proliferation, arginase resulted in 78% inhibition and tyrosinase 57% inhibition. Other enzymes inhibited less than 20% lymphocyte proliferation; they included alanine dehydrogenase, arginine decarboxylase, aspartase, glutamic decarboxylase, glutamic dehydrogenase, glutaminase, histidase, histidine decarboxylase, leucine dehydrogenase, phenylalanine decarboxylase, phenylalanine hydroxylase, tryptophanase, and tyrosine decarboxylase. All four enzymes that strongly inhibited lymphocyte proliferation degraded amino acids that are essential for lymphocyte growth.

PMID: 2124955 [PubMed - indexed for MEDLINE]

Display	Abstract	▼	Show: 20	▼	Sort	▼	Send to	Text	▼
---------	----------	---	----------	---	------	---	---------	------	---

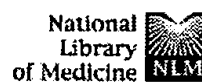
[Write to the Help Desk](#)

[NCBI](#) | [NLM](#) | [NIH](#)

[Department of Health & Human Services](#)

[Freedom of Information Act](#) | [Disclaimer](#)

Jun 5 2003 10:08:34



PubMed	Nucleotide	Protein	Genome	Structure	PMC	Taxonomy	OMIM	Books
Search	PubMed	<input type="text"/>	for	<input type="text"/>	Go	Clear		
Limits		Preview/Index		History	Clipboard	Details		

Display	Abstract	<input type="text"/>	Show: 20	<input type="text"/>	Sort	<input type="text"/>	Send to	Text	<input type="text"/>
---------	----------	----------------------	----------	----------------------	------	----------------------	---------	------	----------------------

☐ 1: Methods Enzymol. 1995;253:179-89.

[Related Articles, Links](#)

Entrez PubMed

## Kinetic analysis of microbial adhesion.

Cowan MM.

Department of Biochemistry, Microbiology, and Molecular Genetics, University of Rhode Island, Kingston 02881, USA.

PubMed  
Services

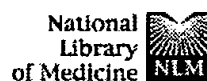
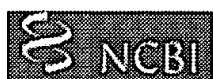
PMID: 7476386 [PubMed - indexed for MEDLINE]

Display	Abstract	<input type="text"/>	Show: 20	<input type="text"/>	Sort	<input type="text"/>	Send to	Text	<input type="text"/>
---------	----------	----------------------	----------	----------------------	------	----------------------	---------	------	----------------------

Related  
Resources

[Write to the Help Desk](#)  
[NCBI](#) | [NLM](#) | [NIH](#)  
[Department of Health & Human Services](#)  
[Freedom of Information Act](#) | [Disclaimer](#)

Jun 5 2003 10:08:34



PubMed	Nucleotide	Protein	Genome	Structure	PMC	Taxonomy	OMIM	Books	
Search	PubMed	<input type="checkbox"/> for						Go	Clear
		Limits	Preview/Index	History	Clipboard	Details			

Display	Abstract	<input type="checkbox"/>	Show: 20	<input type="checkbox"/>	Sort	<input type="checkbox"/>	Send to	Text	<input type="checkbox"/>
---------	----------	--------------------------	----------	--------------------------	------	--------------------------	---------	------	--------------------------

☐ 1: Appl Environ Microbiol. 1989 Nov;55(11):2827-31.

[Related Articles, Links](#)

Entrez PubMed

## **Response of microbial adhesives and biofilm matrix polymers to chemical treatments as determined by interference reflection microscopy and light section microscopy.**

**Marshall PA, Loeb GI, Cowan MM, Fletcher M.**

PubMed  
Services

Center of Marine Biotechnology, University of Maryland, Baltimore 21202.

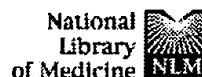
Related  
Resources

The polymers involved in the adhesion of *Pseudomonas fluorescens* H2S to solid surfaces were investigated to determine whether differences between cell surface adhesives and biofilm matrix polymers could be detected. Two optical techniques, i.e., interference reflection microscopy (IRM) and light section microscopy (LSM), were used to compare the responses of the two types of polymer to treatment with electrolytes, dimethyl sulfoxide (DMSO), and Tween 20. To evaluate initial adhesive polymers, *P. fluorescens* H2S cells were allowed to attach to glass cover slip surfaces and were immediately examined with IRM, and their response to chemical solutions was tested. With IRM, changes in cell-substratum separation distance between 0 and ca. 100 nm are detectable as changes in relative light intensity of the image; a contraction of the polymer would be detected as a darkening of the image, whereas expansion would appear as image brightening. To evaluate the intercellular polymer matrix in biofilms, 3-day-old biofilms were exposed to similar solutions, and the resultant change in biofilm thickness was measured with LSM, which measures film thicknesses between 10 and 1,000 microns. The initial adhesive and biofilm polymers were similar in that both appeared to contract when treated with electrolytes and to expand when treated with Tween 20. However, with DMSO treatment, the initial adhesive polymer appeared to contract, whereas there was no change in thickness of the biofilm polymer. These results indicate that both polymers bear acidic groups and thus act electrostatically with cations and are able to enter into hydrophobic interactions. (ABSTRACT TRUNCATED AT 250 WORDS)

PMID: 2624463 [PubMed - indexed for MEDLINE]

Display	Abstract	<input type="checkbox"/>	Show: 20	<input type="checkbox"/>	Sort	<input type="checkbox"/>	Send to	Text	<input type="checkbox"/>
---------	----------	--------------------------	----------	--------------------------	------	--------------------------	---------	------	--------------------------





PubMed	Nucleotide	Protein	Genome	Structure	PMC	Taxonomy	OMIM	Books
Search PubMed	▼ for						Go	Clear
Limits		Preview/Index		History		Clipboard		Details
Display	Abstract	▼	Show: 20	▼	Sort	▼	Send to	Text

☐ 1: Infect Immun. 1987 Jul;55(7):1552-7.[Related Articles, Links](#)

Entrez PubMed

## Role of sialic acid in the kinetics of *Streptococcus sanguis* adhesion to artificial pellicle.

Cowan MM, Taylor KG, Doyle RJ.

PubMed  
Services

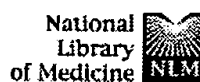
Evaluation of the kinetics of adhesion of *Streptococcus sanguis* 10556 to saliva-coated hydroxylapatite revealed that sialic acid played a role in the formation of a stable cell-substratum complex. In a previous paper (M. M. Cowan, K. G. Taylor, and R. J. Doyle, J. Dent. Res. 65:1278-1283, 1986) the adhesion was found to take place in two distinct stages: a reversible equilibrium, probably governed by long-range forces, followed by a transition to higher-affinity binding. In the present study, artificial pellicle was treated with neuraminidase, and kinetic adsorption and desorption experiments with *S. sanguis* were conducted. The depletion of sialic acid from pellicle decreased the initial adsorption rate constant only slightly. The rate constant describing the initial desorption was unaffected. However, no transition to the second (high-affinity) association occurred. While *S. sanguis* desorption from control pellicles exhibited two sequential rates, with the second rate being approximately 10 times slower than the first, all desorption from sialo-deficient pellicles occurred at one rate that was equivalent to the initial rate constant for control desorption. The cells did not reach an equilibrium with the sialo-deficient pellicle, even after 6 h. Competing sialic acid did not decrease the rate or extent of adsorption, but desorption occurred to a greater extent when cells had adsorbed in the presence of sialic acid. These data suggest that sialic acid plays little role in the initial association of cell and pellicle but that it is necessary for the transition to high-affinity binding and the concomitant decreased propensity to desorb.

Related  
Resources

PMID: 3596799 [PubMed - indexed for MEDLINE]

Display	Abstract	▼	Show: 20	▼	Sort	▼	Send to	Text	▼
---------	----------	---	----------	---	------	---	---------	------	---

[Write to the Help Desk](#)[NCBI](#) | [NLM](#) | [NIH](#)[Department of Health & Human Services](#)[Freedom of Information Act](#) | [Disclaimer](#)



PubMed	Nucleotide	Protein	Genome	Structure	PMC	Taxonomy	OMIM	Books
Search PubMed	▼ for						Go	Clear
Limits		Preview/Index		History		Clipboard		Details

Display	Abstract	▼	Show: 20	▼	Sort	▼	Send to	Text	▼
---------	----------	---	----------	---	------	---	---------	------	---

☐ 1: J Dent Res. 1986 Oct;65(10):1278-83.

[Related Articles, Links](#)

Entrez PubMed

## Kinetic analysis of Streptococcus sanguis adhesion to artificial pellicle.

Cowan MM, Taylor KG, Doyle RJ.

PubMed  
Services

Studies of equilibria between Streptococcus sanguis and artificial pellicle have suggested that there are multiple binding sites for the organism. In the present study, adhesion of S. sanguis to saliva-coated hydroxylapatite was examined by means of kinetic methods. Cell-pellicle complex formation was measured from initiation of binding to equilibrium: Rate constants were calculated for forward reactions (adsorption) and reverse reactions (desorption). Initial binding obeyed reversible, first-order kinetics, whereas desorption of bound cells followed biphasic kinetics. Initial desorption proceeded approximately ten times faster than the slower second rate. The results are consistent with the mechanism C + P reversible CP\* in equilibrium with CP in which CP\* represents the reversible equilibrium that shifts at a discrete rate to the high-affinity CP state. Thus, the biphasic binding behavior that has been previously deduced from equilibrium studies may be attributed to a time-dependent shift from close apposition to pellicle, stabilized by low-specificity forces, to a higher-affinity binding.

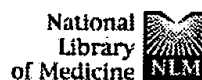
Related  
Resources

PMID: 3020104 [PubMed - indexed for MEDLINE]

Display	Abstract	▼	Show: 20	▼	Sort	▼	Send to	Text	▼
---------	----------	---	----------	---	------	---	---------	------	---

[Write to the Help Desk](#)  
[NCBI](#) | [NLM](#) | [NIH](#)  
[Department of Health & Human Services](#)  
[Freedom of Information Act](#) | [Disclaimer](#)

Jun 5 2003 10:08:34



PubMed	Nucleotide	Protein	Genome	Structure	PMC	Taxonomy	OMIM	Books
Search PubMed	▼ for						Go	Clear
Limits Preview/Index History Clipboard Details								

Display	Abstract	▼	Show: 20	▼	Sort	▼	Send to	Text	▼
---------	----------	---	----------	---	------	---	---------	------	---

☐ 1: J Biochem (Tokyo). 1976 Feb;79(2):289-92.

[Related Articles, Links](#)

Entrez PubMed

## Studies of enzyme-catalyzed modification of proteins. I. Tyrosinase-catalyzed modification of asparaginase.

**Tokushige M, Moriya F.**

PubMed  
Services

Asparaginase [EC 3.5.1.1.] of *Escherichia coli*, an anti-tumor enzyme, was inactivated in a time-dependent fashion by mushroom tyrosinase [EC 1.14.18.1.]. The inactivation did not proceed, however, when heat-inactivated tyrosinase was used. Exclusion of the atmospheric oxygen or addition of diethyldithiocarbamate, a copper selective chelating agent, prevented the inactivation. The difference absorption spectrum of tyrosinase-inactivated asparaginase versus intact asparaginase exhibited the appearance of marked absorption peaks at 300 and 350 nm. These results indicate that the tyrosyl residue(s) of asparaginase, which is essential for the activity is enzymatically modified by tyrosianes.

PMID: 818077 [PubMed - indexed for MEDLINE]

Related  
Resources

Display	Abstract	▼	Show: 20	▼	Sort	▼	Send to	Text	▼
---------	----------	---	----------	---	------	---	---------	------	---

[Write to the Help Desk](#)

[NCBI](#) | [NLM](#) | [NIH](#)

[Department of Health & Human Services](#)

[Freedom of Information Act](#) | [Disclaimer](#)

Jun 5 2003 10:08:34